

## SUPPLEMENT.

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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## Original Correspondence.

IRONWORKS AND COLLIERIES IN YORKSHIRE.  
WORSBOROUGH DALE FOUNDRY COMPANY.

Of the various ironworks in South Yorkshire those of Worsborough Dale deservedly enjoy a high reputation for general engine and machinery material of every description. Situated in the centre of a large and active colliery district, there is a constant flow of business peculiar to that most influential and important of our industries, coal mining—as well as of boilers and fittings, wheels and axles—being done. Another trade, which has been largely cultivated during the last two or three years in the district, is that of wagon building, and Mr. Mitchell, jun., was the first in this country to receive orders from some of the principal railways in France, including the Northern, to supply break-vans and mineral wagons, to replace those that were either taken or destroyed by the Prussians. The works, rather less than a couple of years ago, were transferred to a company formed on the limited liability principle, and are now in a high state of efficiency. Mr. J. Mitchell, of Swithie Hall, and managing partner of the Edmunds and Swithie Main Collieries is the chairman, and M. Josse, the extensive coal shipper, of Grimsby, the vice-chairman. The wagon-building sheds and the engine-shops and foundry cover a large area of ground, occupying two sides of the high road, extending on one side to the canal and on the other to a branch line of the Manchester and Sheffield Railway, so that there are good facilities for receiving and sending away material.

Commencing with the wagon-building works, and entering from the principal office, we found ourselves in a covered shed of large proportions, occupying more than an acre of ground, and in which are conveniently placed all the necessary machinery, timber, and iron work for turning out a wagon or carriage complete in every part. In addition to vast piles of timber, there are turning, boring, and planing machines, and all the other necessary appliances for expeditiously doing the wood frame as well as the wheel and other ironwork. The shed has several lines of rails laid down through its entire length, on which the wagons are erected; and there is also a turn-table in the centre, for turning them in any required direction. For the cutting of the wood there are a number of circular and other saws, together with an upright machine, into which a number of saws, as required, can be worked together, the maker being Mr. Towers, of Leeds. In all directions workmen were busily engaged in the work of preparing the frames, there being just now a very brisk demand for wagons, especially for the conveyance of minerals. The power is obtained from an ordinary engine, with a couple of boilers. Leaving the shed, we reach a very large open space, in which are piled a vast quantity of well-seasoned English and American oak, as well as some other descriptions of timber, great care, it appears, being used in the selection.

Reaching the wheel-shop, we find a great deal of machinery, including a very large double-action lathe, by Woodhead, Sherwin, and Holdsworth, of Leeds, and some single ones by Buckton and Co., of the same place. There are also several ordinary axle-boring and wheel-drilling lathes, wheel-slotting lathes, wheel-centre lathes, three drilling machines, and a machine for pressing the wheels into the axles. There are four fires, two for glutting and two for heating purposes. In another part of the building there is a very good spoke-bending machine, as well as similar appliances for forming the timber into the shapes required. In the wheel-cutting shop there is a patent fan, which is by no means an unnecessary article. In the smiths' shop there is a large steam-hammer, with two fires with wrought-iron tubes, and two ordinary smiths' fires. In the shop there is an ordinary engine, with a couple of boilers, and a pair of heating furnaces.

At the extreme end of the wagon-building works a new boiler-plate is being fitted up, on a very extensive scale, and in which a large quantity of work will be turned out when completed. A number of workmen are at present engaged at the place, in which there is a vertical engine and boiler, together with a punching machine, a mangle for bending plates, with heating furnaces, and all the other essentials required for doing a very extensive business. The boiler making was previously done at some distance from the present works, and when in the hands of Mr. J. Mitchell, jun., formed an important branch of the business, seeing that Mitchell's boilers had a very high reputation in all parts of South and West Yorkshire. Indeed the boilers with the name are to be found not only at the Swithie and Edmunds Main Collieries, but at very many others throughout the West Riding.

Leaving the wagon-works, and crossing the road, we reach the engine-shop and foundry. The first entered is the fitting-shop, which is upwards of 60 yards in length, and fitted up with a vast quantity of machinery of a varied character. It includes boring lathes for engine cylinders, capable of boring at least 36 or 40 inch cylinders. Of ordinary lathes there are three by Buckton and Co., Leeds, and others by different makers, together with a very large planing machine, by Smith and Peacock, of Leeds. In another part of the same building there were shaping machines (Buckton and Co., Leeds), slotting machines, a large boring lathe with 8-ft. face-plate, drilling machine for forge work, and others for ordinary purposes. In a room above there was also a good deal of machinery, including a screwing and a glazing machine, wood-turning lathes, &c. On the stocks, being constructed, we noticed a pair of coupled engines, of 34-in. cylinders, 5-ft. stroke, with a 16-ft. drum, intended for the large colliery now being sunk to the Barnsley seam of coal, near to Wombwell, and known as Mitchell's Main.

The smiths' shop is a well-arranged building, and very well fitted up, having a steam-hammer, together with ten hearths. In various parts of the shop there are shearing or cutting machines, and a guide plate bending machine. There is also an ordinary engine, with two boilers, for the use of those engaged in that branch of work. Adjoining the smiths' shop there is a clay-grinding mill, where the material for the moulders is ground preparatory to being dried. In the foundry itself there is a tramway, for conveying the material to and fro, and a pair of large cranes for conveying the ladles with the metal to any part of the building. Here almost every description of small and large castings are turned out, applicable for every description of machinery, as well as for rolling mills, forges, engines, &c. Amongst the castings just made we noticed a 12-ft. diameter

pulley-wheel, for the Lund Hill Colliery, as well as some large pipes, cylinders, and wheels. Adjoining the foundry is a loam-shed, where the clay for the moulders is dried, and there is a carriage for conveying it from one end of the place to the other.

In close proximity to the foundry is what is known as the erecting shed, where the work is completed and put together ready for sending out. Here at times there is a great deal of mining plant, a branch of the iron trade which the company appears to be cultivating, and for which the works are particularly well situated. Above the shed are the pattern-shops, but owing to a dispute with regard to wages the men were away. We were, however, informed that they were likely to resume work in a day or two, as the directors had agreed to give the men the advance asked for, 2s. per week. As it is, the various shops were actively alive with business, and at few places have we seen such a variety of work turned out as at Worsborough. Pumping and blowing machines, air-compressing engines for collieries, agricultural machinery, large and small wheels, with wagons of every description, form only a part of the articles produced by the Worsborough Dale Foundry Company (Limited), which we understand is now in a very flourishing state, a position in a great measure due to the unwearied activity of Mr. J. Mitchell, jun., the managing director.

## COAL MINES (NEW) REGULATION ACT, 1872.

WHO IS "MANAGER."

SIR,—The sort of question put by "An Interested One," in the Journal of Sept. 28 (which I have only just seen), is exactly the sort of test one wants whereby to try the working capabilities of the Act, and to consider how far its language can be adapted to practice.

The short answer to his query—Who is Manager? I think is this, anyone whomsoever who has the control and daily supervision of the mine, provided he be nominated in writing by the mine owner, and notice in writing of such nomination be sent to the Mine Inspector of the district.

There is only one exception—viz., a contractor for the getting of the mineral cannot, nor can anyone in his employ, be "manager."

To a "manager," therefore, there are the following requisites:—

- 1.—He must be a person not so disqualified as just mentioned.
- 2.—He must have the control and daily supervision of the mine.
- 3.—He must be nominated in writing by the owner.
- 4.—Such nomination must be communicated in writing to the inspector.

To which qualifications must be added one other—

5.—He must hold either a certificate of competency, or a certificate of service.

And now (to follow up your correspondent's difficulty), how is the "manager" to be distinguished from an "agent?" Only, I think, in this—viz., if between him and the owner there is no intervener there is no "agent." If there be such intervener (a person who in power is superior to the manager), then that intervener is an "agent."

To the conduct of a mine the Act does not render an "agent" in any way needful, but only subjects him, if he exists, to certain obligations and liabilities. A "manager," however, is indispensably requisite.

Your correspondent will not fail to remember that an "owner" may himself be manager, in which case of necessity there is no "agent" in the sense of the Act, because an agent cannot be superior in power to the person from whom his authority is derived.

I wish I could get a few questions of this kind put to enable me to judge what are the difficulties which beset the minds of practical men as to the interpretation of this or that in the Act. It would enable me, I hope, to render much more practically useful any future edition of the reprint of the Act, with notes, &c., which I have published, and in which, whilst I have been anxious not to overlay with unnecessary explanation anything which, to me, seemed reasonably plain, I cannot but feel that, as a lawyer, I may have failed to see points which present considerable difficulty to non-legal minds.

In the preface to my book I have invited the pointing out to me of any "faults," which, in that case, I might hope, in a future edition, to work through; but at present, though some hundreds of copies have been sold, I have not received a solitary communication.

Bilston, Oct. 22.

JOHN WILLIAM HALL.

## "ON TIN AND ITS ORE.—By MR. N. ENNOR."

SIR,—A letter under this heading appeared in the Supplement to the Mining Journal of Sept. 14, wherein the writer states he had been on a tour through Cornwall, with a view of aiding the Ancient Britons to improve their old stamps. Referring to the new stamping apparatus, of which this gentleman says: "My call appears to have stimulated them to come out with three or four new plans, but neither of these are as yet perfect; this could not be expected, either, when we look at the projectors, as neither of them are practical men! the young stamps being fed with a spoon, &c."

In your "Report from Cornwall," same date, it is stated—"The pneumatic stamps of Messrs. Harvey and Co. are making headway; a couple of heads have been put to work at New Rosewarne, which have proved capable of getting through their 20 tons a day. This will leave a handsome profit; more are in progress." This fact does not appear like feeding an infant with a spoon, although it might not be exactly what Mr. Ennor expected to have seen. It is quite possible that minor details of this stamps will require modification in arrangement of passes or grates for the various kinds or classes of tin, or gold-bearing stone, from soft to very hard. But the principle—i.e., lifting and striking through a medium of compressed air—is surely correct, notwithstanding the P.S. to the letter in question, advising the promoters to give their new stamps time to heal their wounds, not inflicted, let us hope, by the legendary cate of the Green Isle.

It must be pleasing to the promoters and philanthropic helpers of the new era generally that the chief agent of New Rosewarne was very sanguine as to good results, and it is believed that Capt. J. James will use his best efforts to allow the new stamps a fair trial at least. Further, in advising a man to walk from Tincroft Mine to the sea, to witness the process of catching the tin which escapes, is surely an unfortunate selection on the part of your correspondent, which information, it is thought, might have been imparted to him by that old experienced man alluded to as a man of slight experience, walking from Tincroft through the village of Pool, following the waste water from that mine and Carn Brea,

might be satisfied to learn that endless devices and machinery for catching tin are of no avail, unless tin is flowing towards them. It is generally supposed, also, that the parties engaged with said "devices and machinery" for the catching of tin from Tincroft (even if old experienced men) know this fact to anything but their satisfaction. It has been said that the manager of Tincroft and Carn Brea is a perverse man for not allowing the tin to escape from these mines, seeing that the "devices" are set up to intercept the mineral in case it should happen to be flowing seaward at any time. Possibly, however, the gentleman having control of these mines expects that some practical method for the extraction of tin from slimes effectively will shortly be introduced. At all events, here is a field for old experienced "practicals" to deal with tin after it is stamped, and this leads to the question as to who is the practical man. Is it he who sets up machinery for stamping, or any other purpose, and works at it until it is a success, or otherwise, without shrinking? Or, is it the maker of impractical models?

But when, O when, shall we hear of Mr. Ennor's new stamps at work? One matter-of-fact stamps will be worth 10 "models" towards settling the important question of stamps improvement. Acting cautiously, and waiting for the results of other men's work, has not the true metallic ring of the practical man about it, such, at least, is the opinion of more than—  
A. R. R. O.

Oct. 12.

## THE SCIENCE OF INVESTMENTS.

SIR,—In consequence of the interference of landlords in the management of our Cornish mines, and the sad incubus which their conduct has entailed on legitimate mining, I subjoin a list of the present dividend mines discovered during the past quarter of a century. It is true that other mines have declared dividends during the period in question, but they either cease to exist or have passed into the calling list of speculative adventures, and must no longer be classed amongst the paying properties. In respect of the latter, we may enumerate East Basset, Buller, Rosewarne United, North Pool, Trelyn Consols, Treweatha, West Caradon, and Buller, formerly good mines, but now associated with more than average hazards. Those that have ceased to exist include Great South Tolgus, West Providence, Tremayne, Alfred Consols, Chyprase, Edward, Sortridge Consols, Condurrow, Bedford United, Rosecan, Carnyarn, Grambler and St. Aubyn, Kelly Bray, Wendron Consols, West Damsel, Ludcott, and Wheal Trelawny. Such mines as St. Ives Consols, Levant, North Roskear, Seton, East Crofty, and others of similar calibre, belong to the first quarter of the present century, and are records of the past, and in no way connected with the success of mining during the past 25 years. There are, of course, many mines at work at the present day that stand boldly forth as brilliant prizes, but they were discovered and existed prior to the year 1846. The following 22 mines embrace all those of Cornwall now profitably worked that have been discovered during the past quarter of a century. Of course I omit West Chiverton, as the mine was an acknowledged property, although only partially worked, at least 30 years ago.

The capital subscribed is £38,820, and the aggregate dividends £213,987. Surely the landlords of Cornwall cannot in their extreme greed regret the adventurers in mines receiving in dividends 6s. 8d. in 17. on those 22 mines over a period of 25 years, say nothing of losses.

## DIVIDEND MINES DISCOVERED DURING THE LAST QUARTER OF A CENTURY.

	Capital.	Aggregate dividends.
Castle an Dinas .....	£ 10,000	£ 1,500
East Balliswidden .....	10,000	208½
East Caradon .....	16,750	91,240
Gawton .....	15,824	2,567
Great Wheal Vor .....	236,320	35,300
Gunnislake .....	50,688	768
New Pembroke .....	35,000	5,440
North Levant .....	21,200	9,300
Penhalls .....	15,000	13,125
Queen .....	7,500	1,500
Rosewall Hill and Ransom .....	25,476	4,260
Shelton .....	10,000	600
South Carn Brea .....	7,875	2,500
St. Just Amalgamated .....	20,698	4,397
Terras .....	25,000	1,250
West Frances .....	13,666	6,912
Grenville .....	40,000	2,848
Jane .....	5,513	20,480
Mary Hutchings .....	3,250	4,300
Russell .....	12,000	1,200
Uny .....	45,830	8,899
Wheal Whisper .....	10,000	500
<b>Total .....</b>	<b>£38,820</b>	<b>£213,987½</b>

## DIVIDEND MINES IN EXISTENCE PRIOR TO THE YEAR 1846.

	Capital.	Aggregate divs.	Value.
Rosewell Downs .....	£24,000	.....	£108,000
Botallack .....	18,250	£123,950	40,000
Carn Brea .....	35,000	297,000	170,000
Cook's Kitchen .....	45,375	25,000	80,000
Devon Great Consols .....	1,024	1,192,900	70,000
Ding Dong .....	32,619	4,220	—
East Pool .....	46,147	417,006	320,000
Frank Mills .....	3,120	83,600	115,200
Herodsfoot .....	19,625	22,000	—
Hington Down .....	8,704	62,976	17,500
Marke Valley .....	37,200	42,000	40,000
Phoenix .....	40,725	68,650	26,000
Providence .....	25,000	228,750	—
Tincroft .....	11,569	114,620	26,000
Trumpet Consols .....	640	355,584	11,000
West Chiverton .....	54,000	245,550	260,000
West Seta .....	23,000	36,200	60,000
West Basset .....	30,000	152,626	24,000
Wheal Margaret .....	18,800	—	30,000
Wheal Mary Ann .....	21,000	160,000	13,000
Wheal Owles .....	12,422	75,245	60,000
Wheal Trelawny .....	10,240	75,220	10,000
Wheal Trecroft .....	5,600	40,800	60,000
Wheal Trecroft .....	2,624	336,912	50,000

I submit, sir, the above statistics for the information of Cornish landlords, in the hope that they will refrain from interfering with the executives of mines. What is it to the landlord how the labourers are paid, whether four-weekly or by the lunar month? It is almost intolerable to pay the heavy dues and charges for land occupied or destroyed by the miner which is now inflicted: 80l. per acre for land worth 10l. to 15l. is the ordinary charge. It is, therefore, need-to be dedicated to as to the system of working and payment of labour charges by landlords who are generally as ignorant of commerce as they are selfish in their exactions.

It is not my intention to work any more mines in Cornwall without first having a satisfactory lease. A tack-note is useless, and only



calculated to entrap the unwary, and whenever the prospects are what the late Capt. Chas. Thomas called "undetermined." I must have the royalty reduced to 1-64th or 1-128th, or 1-256th part of the produce when the yield exceed 50 per cent. of the costs of production, and a total rebate under less favourable circumstances. It is an indisputable fact that Cornish mining (otherwise than in respect to those mines existing before the year 1846) is the leanest enterprise of all our home industries; and the time has arrived when the landlords should be informed that the day is not far distant when they will have to pay the miner a premium, instead of exacting dues and dead rents, to encourage him in opening their undeveloped mineral ground. There are, unquestionably, some good mines in Cornwall, but they are mostly neglected; hence investors secure so few prizes, while the initiated grow opulent and wealthy. R. TREDINICK.

London, Oct. 23.

Consulting Mining Engineer.

#### THE APPROACHING PANIC, OR THE TRADE OF ENGLAND—ITS PRESENT AND FUTURE.—No. II.

SIR.—Having endeavoured to show how accommodating paper money is, its real insignificant value in the dire hour of need, and the losses that must accrue through bankers in panics to those who have large current or credit balances, now let me draw attention to the deposit accounts, for which the miserable interest of 2 to 3 per cent. is in the days of plenty allowed—plenty, indeed; the days of plenty simply mean confidence. The bulk of deposit accounts find their way, like other monies, into the different banks throughout England in the shape of paper. However, the depositors in blissful ignorance place in their own minds honest hard cash in the safe keeping of others, who profess to cater well for them, and they expect upon giving a certain notice to receive hard cash when asked for. Bankers, like all individuals who strain at a gnat, and yet fancy they can swallow a camel with impunity, no doubt mean to do well, and, as, perhaps, it is their earnest desire to show to the world the importance of looking after the pence, and carry out the old proverb that the pounds will take care of themselves, it may well be that they ignore the fact of the millions of pounds floating about being only bubbles when blown, and use, as they suppose, the zealous care in investing their deposits in securities that cannot fail to be safe, and of being gathered again into the fold when required. Pray, then, what are these safe securities? The majority of them are but bills, acceptances, notes of men or firms in a large way of business that would feel disgraced if they became insolvent for less than a million. Like the banking system, it is the enormous amount of trade they do that inspires confidence, although if an analysis could sometimes be made of their affairs the product would be next to nil. Nevertheless, they have only to open their arms for credit to rush into them, and when a strong current of such money sets in against extensive firms for cash, they have but to pass a few acceptances in the hands of their bankers to be able to circulate money more lavishly than ever; and once raise the wind to stem the tide, and all danger is past, and the ebbs and flows lose its power. It is the interest of bankers to keep such gigantic businesses afloat, they can enter into and appreciate feelingly such peculiar circumstances, especially as they have only to discount the promises to pay, which is merely allowing cheques to be honoured, requiring but very little and more often no real cash at all; the bankers charge for the accommodation, and, of course, an entry upon the books of only a few millions received at 2½ per cent., and lent at 5 per cent., must show great profits. It is very simple for a good accountant to prepare an elaborate balance sheet, showing a profit of millions, and loss account upon the strength of such data, as the bills not due are treated as assets, and thus the bank shareholders get good dividends, in most cases settled by the favourite method—paper. Just fancy 5,000,000, received at 2½ per cent. per annum, and lent upon what are called good three months' bills at 5 per cent. per annum, the profit is 31,250, far more than searching for gold and silver; but now fancy a panic spread throughout the country, with the 5,000,000 dishonoured, we have instead a bitter purgatory pill to swallow, and in the shape of a loss of the 5,000,000, less the discount. These matters rarely happen, but in the time of a severe panic most bills might as well be dated three days after conference as any other time. However, bankers, as a rule, vary; they would not allow the paper or signature of a pauper or poor man to avail him might, he must be one of the members of the club before enjoying its privileges, it would be fostering too absurd an idea to allow such a personage to benefit one little of this world's wealth, either imaginary or real; he must be enrolled, bring money in his hand, or get his name by some means or other upon the books. It would be encouraging too much the absurd idea of equality for a banker to give something for nothing. No matter how it is done, the great point is to be entered in a ledger, and the secret for the enrolment of a poor man is to be assisted by cheque from a member, a bill of paper, with a penny Government stamp, accompanied by a "good" signature, will do the needful, and upon this the new member, once so poor, may trade. Such acts of charity are rare, but after all in the days of adjustment, when it is discovered that every 50l. does not honestly mean more than 1l., the gift will, mayhap, be found to have done great good without much real cost, taking into consideration the supposed real wealth being but imaginary; it is then in the power of the newly-made member to increase or decrease the talents suddenly bestowed upon him; if he changes them into gold or silver coin, and is by bad management or misfortune bereft of his treasure, he is undone, but he has his chance, and if by barter or other means—for instance, if he can buy an article for 50l., and sell it for 60l., the dog eat dog business of this life, and carry it on continuously and successfully, increasing his transactions as profits and capital smile upon him, then his becoming a member will have been indeed fortunate, as he is another one added to the list who enjoy the comforts that this world and wealth, real or imaginary, bestow. He shares the same fate as the rest, and when the day of reckoning comes, like all wealthy men, he is glad to give up his riches, and he is then, then, all the riches he has taken the precaution to turn his profits into hard cash, or invested them in real, safe securities, and can afford to wait for better days before realising, by having sufficient cash in his own hands, and not at his bankers, to carry him through the storm.

We do not hear of so many misers now-a-days. I have often wondered at such individuals existing, but no doubt they have studied deeply the real value of money, and dreading panics have hoarded the real, preferring to have the prize before their eyes rather than part with it, even at the most promising offers of interest for a more than probable future ideal. But bankers do not invest all their deposits in discounting bills, their professed study and rule is always to attempt to avoid everything speculative. I cannot understand how they accommodate great houses upon the strength of paper, as when they do topple over the fall is indeed heavy; however, in days of tranquillity and plenty of business, when they have more cheques flowing in and visionary cash than they know what to do with, I suppose the serenity of trade, short dates, and good interest induce them to go into that particular department. The bulk of advances is made upon landed and house property, which I readily admit means real wealth, but in panic times even such securities are almost valueless, or if disposed of at all are sold at ruinous sacrifices when cash is scarce. Money, real cash, is, of course, whenever put to the test, always scarce, but a want of confidence, stagnation of trade, makes it almost unobtainable at any price, and the little that is saved in such times from the many wrecks is held with so tight a hand, the public then going to the other extreme, no faith being put in either the real or ideal, except in the actual possession of gold and silver, that properties worth in the aggregate millions upon millions of pounds, and upon which banks have made heavy accommodations, will not realise one-half of the sum advanced—in fact, will not sell at all. Where is, then, all the riches of the world? It is in such moments useless to talk. One and all have but one settled purpose—to get back their own in bullion, or recover as much as they possibly can. There is no doubt that bankers would even at such a crisis by assistance recover themselves; as regards figures, they are perfectly solvent, there is, if not actual cash, at least wealth, in the shape of property, although deteriorated, to match the ledgers, and if their customers could only be inspired with confidence when it is most needed, matters would after awhile right themselves, and thereby save the vast devaluation of property, and consequent utter ruin, the storm has set in with fury, but even though at the worst it continues long, still it cannot last for ever. A calm must follow such a storm; but like a wreck at sea, there is no discipline; all power of control has gone, and the evil consequences that might be averted or remedied by the power of reason, even at the eleventh hour, crush and annihilate the land and trade with overwhelming force. Self and self-preservation alone, with a few exceptions, is, with a vengeance, then the first law of Nature, the wealthy are stricken, the business man of means is ruined and beggared, and the artisan and labourer, down to the poorest class, are thrown out of employment and bread. That this disaster must happen sooner or later, with more or less havoc, which can only be governed by the preparations made to meet it, no thinking business man can dispute. And why? because the supposed wealth of the country, with a lack of gold and silver to back it, is but fiction, like castles in the air; and, as is nearly always the case under such circumstances, our generally acknowledged strongest foundation is the weakest point, and will be the first to fall—the banks throughout England, as the downfall of half-a-dozen would be but a preliminary, and herald forth the failure of the rest; for a house that is built upon the sand cannot stand against a tempest, and where the leading representative of the country bankers, and, as a rule, discounters, the very desirability of the search for gold and silver, and other minerals, because speculative, and encourage a system of trading to the extent of thousands of millions by paper, when but a tithe of the amount actually exists, the day of woe and lamentations must be near at hand. And what will follow?

Fermit me, readers, to impart my version. The past few years, and especially the last 12 months, have swelled the amount of business to such an extent that nearly all minerals and metals have risen in price 25 to 50 per cent.—in fact, coal, iron, and salt have advanced more than 100 per cent., but no difference whatever is observed in the price of gold and silver, the true wealth of the country. Nay, it is of no use denying it; the purest logic cannot confute my arguments. I am well aware that tons of precious metals on a barren island would not have the same charm to a poor solitary outcast, stricken with the gnawing pangs of hunger, as a loaf of bread, but the value of money in civilised countries cannot be disputed. As one simple instance, how many of the value of the value of their properties pledged, and failing to return the loan at a stipulated time have lost their right to their birthright in the days of cash famine for a mess of porridge. Hark! what a welcome metallic ring gold and silver then possess; but to the matter of advanced prices: provisions have also risen to a frightful extent, that what could have been purchased the precious metals are also now costs 1l. This alone, without an adequate discovery of it, is rotten to the core. It is true that the present run of trade, as regards its lasting, advance of discovery is not more than 5 per cent. compared to 100 per cent. upon the general rise in prices of all articles of production and commodity, and trade generally has increased 1000 per cent., or ten times as much.

What a dreadful collapse must ensue! It is too awful to contemplate, and I can only earnestly recommend my readers to set about with a determined will in the earnest pursuit for the real wealth of the land, which is only to be discovered in the bowels of the earth, and by mining. The first and foremost are gold and silver. Nothing earns a better income than mining. It gives more net profits than any other branch of business. It always will be more or less speculative, but if there are blanks there are also prizes, and it is not at all uncommon for thousands per cent. profits to be realised in a few months by successful discoveries; this is the only remedy in a panic, trade cannot be too brisk if it has a reality about it, no dark cloud looms ahead; and with plenty of gold and silver, one continued calm, with not even the anticipation of a storm in the future, may be depended

upon. How easy it is for those who have money or property at their bankers or elsewhere, so much paper, adding store upon store of paper, to be confiscated anon when the tempest bursts—how easy it is for such to lend the search for gold and silver a helping hand. The ideal may assist the real, as paper money, but the real is in the ascendant, with the sun shining upon the instrument in instituting rigid search, and the sun will shine at will in the coming time protect their assistant.

I could not have chosen a more opportune moment to lay the matter without disguise before the world; treat it logically, philosophically, philanthropically, or from a business or profitable point of view, the whole indicates the positive fact that if England is to hold its own, the distinguished name that, above all countries, it has enjoyed for centuries, the key note being wealth, it is needful that one and all, for their own sakes, as well as the interest of the nation, assist in developing its treasures of minerals. I believe that the subject only requires to be laid clearly before the public to receive its merited encouragement, as there must be millions of capitalists in the numerous branches of commerce, professions, and trades who are so deeply interested in their own particular spheres of life, avocations, and profitable pursuits, that they have or give no time or heed to mining. It never so much as enters the thoughts of some, and with others nothing short of an actual panic will satisfy them. Sufficient unto the day is their motto, until they are rudely taught by the collapse of their visionary paper fortunes that all is not gold that glitters. Even the housewife, most careless in business matters outside of the house, who never tires at looking with delight and pride upon her domains of comfort, ease, and luxury, not needing to be told that the four-fifths of them are derived from coal, and going into the question, hopes that some further great discoveries will be soon made, so that they will become cheaper. Poor Benedict, as the husband and paymaster is termed, treats the matter with the same essence of a modern kind of philosophy. He used to do business with gold and silver by the tens, but now it has increased to hundreds, and instead of being bothered with the cumbrous weight of bullion, his transactions are all arranged by paper; he grows as a natural sequence at the price of coals, calls it an imposition, &c., but more calmly reflecting that the goods in which he trades have also gone up 100 per cent., sits down, writes a cheque, and comes to the decision that after all it is not much more trouble to scribble 20l. than 10l., and chuckles with inward satisfaction that if housekeeping has risen from 200l. to 400l. a year, and he feels he is being imposed upon, yet the profits upon the advanced prices in his own flourishing trade, and his banker's pass-book show that he is more wealthy by the transformation. Vain delusion! The present may be very sweet to sip, but have a care, my friend, that the future has not allotted for you the portion of draining the bitter cup to its very dregs. How will it fare with you in the day of reckoning, when you discover that your paper money has no longer any value, that no one will take it, that your banker may be unable to cash it, and what, as a kick generally follows the blow, you find, upon your last resource, that your business is without custom, although you have determined to look the worst in the face, make the best of it, and reduce prices?

Tamar Metal Extraction Works, near Tivestock, Oct. 23.

T. J. BARNARD.

[To be continued in next week's Mining Journal.]

#### THE ECLIPSE GOLD MINES, INYO COUNTY, CALIFORNIA.

SIR.—The *Inyo Independent* of Sept. 21, contained the Rev. Jno. Tamblin's report on the Eclipse Gold Mines, copied from the London *Mining Journal*, in which he displays an unreasonable quantity of spleen and venom against Mr. Jones for having stated in one of his reports to the company that "the Eclipse Mines entire management has been of the most extravagant and non-practical description he ever met with during his mining experience of 40 years." And the rev. gentleman "thinks Mr. Jones would have done well to point out the extravagance, knowing there had been more than one manager—that is, he would have Mr. Jones to say that the late Mr. Tregallas was a man of extraordinary ability, a good mining engineer, &c.; but Capt. B.—, his predecessor, was most extravagant, wasted the company's funds, and was careless and indifferent about the company's property; but I infer by "entire management," that Mr. Jones means the whole management from the commencement to date of report. It is true that Capt. B.—erred in having the atmospheric stamps erected in a pit, and it is well known, and I verily believe true, that Mr. Tregallas was prejudiced against the said mill; but when the Rev. Jno. Tamblin asserts in public "that he knows everything was done that could be done to make it a success, producing it." His reverence goes on to say, "that he knows more than many individuals give him credit for. Before making such a positive assertion would it not have been better for him to have informed the public of the experience he has had in working atmospheric stamping mills, and any other mills stamping gold ores, and then the particulars of the methods used or adopted to endeavour to make it a success? His reverence, I think, believes in the motto, "good will towards men;" and no doubt ere this he has informed Messrs. Harvey and Co., the celebrated and eminent engineering firm, at Hayle, Cornwall, that the said mill was erected in an error to the plans and specifications supplied by the late Mr. Tregallas, and that alterations made, that he dispensed with the driving-wheel on the engine-shaft, and that the mill was driven with belting on the fly-wheel (on the engine-shaft) to driving wheel on mill-shaft, and the stonebreaker was driven with belting from the fly-wheel on the atmospheric mill-shaft. The rev. gentleman would also do well to inform the patentees that all the large rock that could be rammed through the "pass" into the coffer was passed through with the "small," and that if the manufacturers had made the pass wide enough to let through the largest rock it would have been done, and the stonebreaker might then have been dispensed with, and placed alongside of the unused fly-wheel as monuments of waste and extravagance.

The rev. gentleman, knowing all that was done to make it a success, he will also inform both manufacturers and patentees that whenever the grates were taken off the coffer contained a mysterious quantity of old scrap iron in addition to the amalgam, and that the atmospheric mill was better adapted for making old scrap iron than for crushing or stamping the Eclipse gold rock, nearly a wheelbarrow full having been taken out at a time. I used the word mysterious because myself and others often examined the rock without being able to discover the cause of the failure, and the atmosphere mill proving a failure, a new mill was wanted, and accordingly built. True, but with how many alterations and improved failures in course of erection? How many drawings and plans from San Francisco (supplied gratuitously, no doubt)? Mr. Tregallas engaged the services of Mr. Harry Vivian, who he considered to be one of the best millwrights on the Pacific Coast; he erected the mill, and told me more than once that he (Mr. Tregallas) had three plans from San Francisco, and that he would not allow him to work by either, and that Mr. Tregallas was always having alterations and so-called improvements made, which he considered to be one of the best millwrights on the Pacific Coast; he erected the mill, and told me more than once that he (Mr. Tregallas) had three plans from San Francisco, and that he would not allow him to work by either, and that Mr. Tregallas was always having alterations and so-called improvements made, which he considered to be one of the best millwrights on the Pacific Coast; he erected the mill, and told me more than once that he (Mr. Tregallas) had three plans from San Francisco, and that he would not allow him to work by either, and that Mr. Tregallas was always having alterations and so-called improvements made, which he considered to be one of the best millwrights on the Pacific Coast; 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in the affairs of any other mines than for the lords above named. Is this agreeable to you?

I conceive that it is my duty to lay these few facts before my fellow-shareholders. I came in, unfortunately, at nearly double the present price of shares, and I want to know the meaning of this depreciation in the value of my property. It has gone down lately nearly 20,000% in market value. The questions I ask are these:—1. Is it down lately, thoroughly worked?—2. Do we get full value for our money in the way of labour, materials, &c.?—3. Is not the cost of management excessive?

I make these comments in no unfriendly spirit, but as a shareholder but rarely attending the accounts, I think it desirable to "ventilate" questions of public importance. Since writing the above I learn they now have a weighty opinion on the mine.

A SHAREHOLDER.

#### WHEEL ARGUS.

SIR,—I have received several enquiries respecting Wheel Argus, but do not see that I can add much to what I have already written. Treleigh Wood was brought out upon the reports of old men—that is, of those who had worked in the mine 40 years ago—who said that large quantities of tin had been left in the mine when it was only at 40% per ton; and their reports proved so correct that the mine advanced in market value from 1000% to 200,000% in less than 12 months. Now, Wheel Argus is not likely to be so large a concern as Treleigh Wood, as it is at present only 20 fms. deep, but there is the same kind of testimony as to the mine, which may be summed up thus:—

1.—The report of the late Capt. Chas. Thomas, of Dolcoath, one of the most cautious men of the day, who reported very favourably upon the position, character, and productiveness of the lodes, then worked by an inefficient water-wheel; and recommended the erection of steam-power when tin was at a very low price.—2. The testimony of men who last worked in the mine; and, 3. That of the late agent himself, who says that the mine only stopped, in 1844, because tin was at 42% per ton, and the company had not money to put up machinery. He considers that as soon as the mine is in fork there is tin enough discovered in the mine to start and keep 12 heads of stamps going, and as the mine is opened out good profits, he says, can be made.

Therefore, the present company have purchased ample machinery, and the steam-engine will, I am told, be at work, and the mine in fork, in six months from this time. And then, if the reports prove true (and there are the old burrows now working at a profit with eight heads of stamps, to confirm them at present) the shares may reach 5% each. On the other hand, if the reports are not confirmed, the loss will be comparatively small.

Two or three gentlemen, I understand, since the appearance of my Notes, have taken this view of it, and have each purchased largely, intending to wait the result of seeing the bottom of the mine. It is in 6000 shares, and at a meeting lately a call was made, which, after paying for all the machinery, &c., leaves 2000% in hand, and ample to prove the mine. Mr. Jehu Hitchins is the secretary and purser; and Messrs. Watson Brothers, of St. Michael's-alley, Cornhill, London, will answer any question as to the price of shares, &c. I have been requested to give these particulars, because in the Share List of last week, by some mistake, the mine was said to be in 100 shares only.

In reply to "Observer," I will write privately in reference to the first mine he mentions. Old Treburet I did not see, but I understand when the next level is reached there is a fair prospect of making large profits; at present the mine is about paying cost. Of the others I cannot say much at present.

P.S.—The *West Briton* quotes my remarks on Treleigh Wood, which it considers "uncommonly sanguine," and hopes the wishes of the promoters may be realised. I was not the promoter, and am not a shareholder; and advise the *West Briton* to do as I did, have the mine inspected.

#### THE RED RIVER.

SIR,—Any person conversant with the physical geography of the Camborne and Illogan mining district, upon reading "No. II. Cornish Notes, by Argus," can scarcely suppress risible emotion. He says that this river "is supposed to take its rise somewhere about Tuckingmill, between Redruth and Camborne." A perfect stranger to the locality would naturally infer that the source of the stream was unknown, like that of the River Nile was for ages, and that no explorer had as yet the daring to trace it out. If "Argus" will take the trouble to go to Higher Boleyn, near Forest Gate, he will find its source. Its length from thence to the sea is 7½ miles; "Argus" does not appear to know much of the mines in the neighbourhood, for he states that Tinorff, Carn Brea, Wheal Bassett, and Wheal Buller, discharge their slimes into the Red River, which is not the case. The following is a list of the mines that do so—South Francis, West Francis, West Bassett, Wheal Grenville, East Grenville, South Condorow, Pendarves United, Dolcoath, South Dolcoath, Cook's Kitchen, South Crofty, North Crofty, East Pool, North Rosewarne, East Seton, Wheal Seton, West Seton, New Seton, and Emily Henrietta.

I shall not comment on the description given by "Argus" of a stamping mill, but shall merely say that the persons who on the course of the stream make profit by dressing the slimes are not a respectable class, if by the term "squatter" he means so to describe them, but respectable members of society. "Argus" puts before our eyes an account respecting the agents of the mines most unwarrantable. He says, "I have heard, too, of the agents of mines having frames and tackles of their own on the river; and if this be true, I can scarcely conceive anything that could be more detrimental to the interest of their employers. By the regulation of the stamps and grates the tin might be made to flow more or less to the Red River, and enough goes there as it is." It is not my business to defend the agents, but I am sure that the statement quoted above is both absurd and unfair. Does "Argus" suppose it possible that an agent could rob his employers in the manner supposed? Surrounded as the agent is with hundreds of eyes, such a mode is impracticable, and how can the great regulation benefit a squatter? Nothing but the puddle water holding tin in suspension can reach him. The companies' dressers take out all that they can, and the first squatter takes all that he can, and so, one after another, all the way down to the sea; and if the length of the river were twice as long as it is, other squatters on the additional length would find it worth their attention to dress the slimes coming down. The fact is, that with the present degree of attainment in metallurgical science the detection of tin anywhere in its entirety is impossible. It is true it might be detained in the manner supposed, but it would be of no use, as it would be of no use to the agent, but when you come to dress it afterwards the present results would follow the same squatters would take their benefit. Let "Argus" call at Dolcoath and the other mines, and see what contrivances have been adopted to secure the tin, as far as possible for the respective mines, but all insufficient.

There are acres of frames, &c., at Dolcoath, and if the manager were to cover 50 acres more, he would get more tin certainly, but the people below would have a paying quantity notwithstanding. The managers do their best, I may say, and if 20, more or less, tons of tin run down the stream it is no fault of theirs. They cannot do impossibilities.—*Truth*, Oct. 17.

R. SMOXON.

#### TRELEIGH WOOD MINE, AND NEW ROSEWARNE MINE.

SIR,—The hundred eyes of your correspondent "Argus" may enable him to inspect a multitude of mines in a short space of time, but I cannot congratulate him either upon his judgment or his ability to calculate the relative value of mining properties. He tells us that the reserves of tin ground at Treleigh Wood Mine are worth from 150,000% to 200,000%, and that the mine is selling for 150,000%, or (if we take the reserves at 175,000%, the intermediate amount of "Argus's" estimate) 25,000% less than the value of the ore discovered. New Rosewarne reserves are estimated at 20,000%, and the mine, "Argus" tells us, is selling for 30,000%, or 10,000% more than the value of the reserves. Treleigh Wood not being in so farward a state of working as New Rosewarne, has not yet sold any tin, and, therefore, one cannot say what the future quarterly returns will be, but if the mine has already 175,000% worth of tin discovered, any mine agent will tell you it will take years to exhaust such reserves, and at a large profit to the shareholders. New Rosewarne is making returns of tin, and as soon as the two pairs of pneumatic stamps are at work it is calculated that the mine will sell 50 tons of tin per quarter, and at this rate the 20,000% worth of reserves will be exhausted in about 12 months, and at this little or no profit to the shareholders—1st, because the mine being more than twice as deep as Treleigh Wood, is more expensive to work, particularly in the winter, when the water charges are very high; and 2d, because to return this 20,000% worth of reserves the shareholders have gone to as great an expense in the erection of stamps, dressing floors, &c., as if the reserves of the mine were 200,000%. And yet "Argus" wishes the public to believe that New Rosewarne is the cheaper and safer investment of the two mines! "Argus" is, as a Yankee would say, a "smart" writer, a very "smart" writer indeed, and probably influences some ignorant persons who, in their anxiety to make a little money, allow their credulity to get the better of their discretion. But it would be as well for "Argus" in future to get the better of his credulity to public scrutiny, to consider that it is just possible they may come under the notice of persons who do happen to know something about mining affairs, and are, moreover, possessed a little judgment, and some—

COMMON SENSE.

#### BELOWDA BEACON.

SIR,—Making a visit to different mines in Cornwall, I happened to pay a visit to this one just as the agent was on the point of reporting to the directors that he had cut the great elvan, and believed it to be a great success. The mine has a good geological position, probably the best in the district, as it stands on the apex of the hill of Belowda Beacon, which may be said to consist entirely of stanniferous strata, and is between the granite and clay-slate. Visiting a day or two after Botalack and Borsawell Downs, I found the geological position similar, and this would seem conclusive evidence.

Belowda Beacon stands tolerably near the high road from St. Austell, and will be in close proximity to the Cornwall Minerals Railwayline. I was informed that the elvan was 72 ft. wide, and had given continual profits in an adjoining mine. Some eight or nine lodes fall into the elvan. Before I left further driving proved

convincingly that a valuable discovery had been made in the elvan. Some of the stones shown to me must have been half tin, what are locally described as "slabs of tin." The yield was thought to be in places 600 or 700 lbs. of tin to the ton. Should this hold on, or anything like it, the adventurers will make their fortunes. All the machinery is erected, and, therefore, returns can be made immediately. The mine seemed to be a very good investment.

Going down to Penzance, a very striking instance was related to me of the value of elvans, as shown in the famous Wherry Tin Mines, near Penzance, or Mouseholes. Here a shaft was bodily sunk in the open sea, and protected by boarding raised above high-water mark. The elvan was immensely rich, 80,000% worth of tin being raised; but, unfortunately, the career of the mine was cut short by an American vessel coming into collision with the shaftwork, and so carrying it away in a single day. There is no record to show that a claim was made on the American Government for "indirect damages," though it would seem there was sufficient *prima facie*.

M. A.

#### TIN MINING IN THE GOSS MOORS DISTRICT.

Whilst recently spending some eight or ten weeks in this locality I was pleased to see so much mining activity displayed in several parts. These moors, situate in the parishes of Roche, St. Dennis, St. Enoder, and St. Columb, have long been very celebrated for their numerous and fabulously rich tin stream works, which have been worked from time immemorial down to the present. And this fact alone is no small presumptive evidence in favour of the district yet becoming equally renowned for its tin mines. Practical miners acquainted with the Goss Moors contain many rich tin lodes, and that the deposits of tin in the valley were washed from the backs of the lodes in the hills. These apparently well-grounded opinions are being, to some extent, tested, and so far facts have been disintegrated of an entirely confirmatory character. Mines have lately sprung up in divers directions, presenting encouraging indications of permanent success.

At the head of the moors, on the east, is the WHEAL TREGOS MINE, containing several well-defined strong productive lodes, which are embedded in killas hard upon the granite. The situation of this property, on the whole, can scarcely be surpassed. Only depth seems to be necessary to show that this mine is of immense value. A little to the north-west is the Belowda Hill Mine, just on the top of the Beacon. Why the engine is fixed so far up the hill it is difficult to imagine. There does not appear to be many regular lodes here, rather a large mass of tin-stone. Whether the tin is sufficiently plentiful remains to be seen. Some very beautiful and rich specimens are exhibited, and the property can be prosecuted comparatively cheap, being quarried, or worked open.

Further west, adjoining this set, is the BELOWDA BEACON, in which prize-worthy efforts are being made to test the property, and with cheering success, according to the reports in last week's Journal. If old men's workings may be regarded as favourable indications (and this will scarcely be disallowed), this, together with the new discoveries made, may well prompt the adventurers to look forward to the future with confidence.

Just a mile and a half further west is the CASTLE AN DINAS MINE, on the southern slope of an elevated hill called by the same name. The workings are upon a gigantic elvan course (being from 10 to 12 fathoms wide), intersected by thousands of tin branches, called also "strings" by the natives, varying in thickness from 1½ in. to that of note-paper. The tin is of the best quality. In this property there is an undoubtedly a very large quantity of good tinstuff, some of which is very rich, which can be worked at a cheap rate. With judicious management this mine will most probably become a prize. Here it should be observed that the Castle an Dinas elvan, with its numerous cross-courses, forms the great natural boundary of the Goss Moors, and has, no doubt, been the principal source of their riches on that side; also that it runs through Belowda Beacon and some other sets mentioned below.

Looking across the moors from north to south, upon the opposite hill two other mines will be seen—WHEAL MARY and ST. DENNIS CONSOLS. Few mines can show such magnificent specimens of tin ore. They start with bright prospects. Let the adventurers court a full and speedy development, and I fully believe they will be handsomely rewarded.

Two other properties come in for passing remark, although, strictly speaking, they are not in this district. They are, however, upon the frontier, and are working the great elvan spoken of above. First in order, going east, is BRYN ROYALTON. Wheal Tregos lodes cross the elvan in this set—a point of great value. The adit level will reach this intersection at a depth of about 20 fms., when good results may confidently be expected. It seems a pity the splendid machinery on this mine ready for action should be kept idle so long. The adventurers need not fear to open up their property. The BRYN MINE comes next. This property, to say the least, warrants a thorough trial. I myself have seen in this mine a branch of solid tin, from 8 in. to 12 in. wide. There are hundreds of large blind branches near the surface, and these will probably make tin in depth; and, should this prove to be so, the mine will be one of immense value. Only a small further outlay is required fully to prove and open up the mine.

CORNCOPIA.

#### WHEAL VINCENT—PROMISE AND PRODUCTION.

SIR,—Allow me to reply to a question asked in your valuable Journal of Oct. 19, as to "what has become of the extraordinary and unequalled batch (as a first batch, and in such a short time of starting) of 9 or 10 tons of tin that was to have been ready for market by the 9th of this month." The samples were taken on the very 9th, and sent to the various buyers to be ticketed for on the 14th at Truro, and was purchased by Messrs. Bolitho and Charlestown Smelting Company. Between 5 and 8 tons realised 79% 6d. per ton, and No. 2 parcel 68% per ton. The promise was 9 or 10 tons; the production nearly 9 tons, really sold, and value received. "J. S." himself a "practical" man, he must know that in dressing the first batch of tin a "young mine lately started" there are slimes and skimmings from the burning-house floors, for which "in such a short time after starting" appliances could not be obtained and fixed to extract such fine tin, and make it marketable. This, if not actually sold, is not lost. Therefore, considering the piles at the burning-house floors yet to be treated, and nearly 9 tons actually sold, I do not think that we are 100 or 75, if 5, per cent. in promise above production, and are an exception to the general rule as laid down by "J. S." I hope this is a satisfactory solution of the extraordinary and unequalled batch (as a first batch, and in such a short time after starting), and that we may remain to be "remarkable for soberness and matter-of-fact business habits as a mining company."

RICHARD THOMAS.

#### WHEAL VINCENT MINE, ALTERNUN.

SIR,—It is remarkable how prejudice defies the power of reason and blinds its victims to every phase of light contrary to their own ideas. This mine is situated in a district where mining is unpopular, and was formerly worked by miners of the old type, scanning the surface and failing to dive deep into the earth where hidden treasures lie. The old men found the backs of the lodes worked from 3 to 12 ft. deep on the courses of the same, and really left the lode worth from 12% to 20% per fathom for tin in sight. "J. S." has had a settlement from the back of one lode worth 12% per fathom, and have stopped away down to 7 fms. deep, the lode is quite as good, and is worth to-day about 20% per fathom for tin. About 20 years ago a company worked on No. 3 lode, sunk to 120, drove levels at the 10 and 20, and abandoned the mine with a lode at the 10 worth fully 40% per fathom for tin.

The present company, believing the prospects to be good, decided about 11 months ago to erect an engine and effectually explore and develop the property. Since that time an engine-house has been built, a 30-in. rotary engine (double-action) has been erected about 100 fms. from Nicolls's shaft, and 75 fms. from old engine-shaft, and a line of rods pumping water and three heads of stamps are attached to engine, have been working near three months, and are now erecting 16 heads more, which I hope will be working in three weeks time. We have also a hauling machine worked by the same engine, and all the machinery has worked without any break or accident to notice since our start. We have been told up to the last week that we were deceived, the mineral was not tin but iron; others said it is iron; but whether iron or jack the smelters have paid us nearly 80% per ton for it. We have a good mine, good machinery, all paid for, and money in hand. Have sold one parcel of tin, and shall soon have another to sell; and although prejudice, jealousy, and scepticism may combine to make the mineral iron or jack, we still are sure it is tin. The set is nearly a mile in length on the lodes, and embraces five known lodes. It may be a Carn Brea or Dolcoath in embryo, and the production of 9 tons of tin in less than three months' working with 16 heads of stamps, ought to be sufficient to conquer the prejudice, overcome the jealousy, and destroy the scepticism entertained respecting the district, and cause mining capitalists to look on the grand old granite hills, standing forth in majesty in bravery, defying the fury of the mighty waves of the northern sea, with a look of admiration, and a desire to explore and participate in their teaming wealth.

RD. THOMAS.

#### WHEAL VINCENT.

SIR,—Having sent a letter in the Supplement to last week's Journal, signed "J. S." asking the following question:—"Where is the extraordinary and unequalled batch (as a first batch, and in such a short time after starting) of 9 or 10 tons of tin that was to have been ready by the 9th of this month?"—I beg to enlighten your correspondent by informing him that the tin he enquires for is in the smelting-house at Charlestown and Calenick, and perhaps by this time spread into tin-plates, if not some of it into tin kettles. I was present, and saw the tin loaded into wagons, and so far as I am concerned seeing is believing. Surely if "J. S." had no other motive for asking the question than to obtain the required information he might have obtained this from the people in the district. I am in a position to know that, with regard to this mine, anything like puffing has from the first been discouraged. Nothing will ultimately be gained by exaggeration, neither at present I think will "J. S." gain anything by detraction. I enclose my name and address.

VERITAS.

#### EAST LLANGYNOG LEAD MINE.

SIR,—I should like to be made acquainted as to what has become of this mine, and what the Chairman, directors, and captain are doing with the property. They seem to think they owe no allegiance to the shareholders, who deputed them to manage the mine for the general good. How is it we cannot have reports in the Journal in the same way as in other mines? I am a shareholder in other mining properties, reports of which appear regularly; and, be they favourable or unfavourable, the satisfaction is that we know how our investment is looking. I consider the Chairman, directors, and captain treat the shareholders contemptuously. The mine, for anything the shareholders may know to the contrary, may have been aliened and annihilated Chairman, directors, captain, miners, and all. In that case the shareholders cannot expect to hear anything of the money invested therein. I contend it is time that some steps were taken to ascertain how far the money of the shareholders is being "shuttled out" at the whim and caprice of the constituted authorities of the mine. Should they not have been smothered, I hope they will make it convenient to let the shareholders know something of their property, and at shorter intervals than hitherto.—Oct. 21.

A SHAREHOLDER.

#### EAST ROCKS HEMATITE IRON ORE COMPANY.

SIR,—My attention has been called to a Notice to Correspondents in the *Mining Journal* of Oct. 19, referring to a letter signed "T. B." which remarks with reference to the East Rocks Hematite Iron Ore Company as follows:—"It would be very satisfactory to several contemplating shareholders if some independent practical man acquainted with the locality would give some reliable information respecting the property."

Seeing that the published prospectus of the company contains detailed reports from the eminent mining engineer, Prof. D. T. Ansted, F.R.S., from the well-known local mineralogist and geologist, Mr. J. H. Collins, F.G.S., as well as from

Capt. David Cook and Capt. Hambly, both of whom are independent practical men, well acquainted with the locality, I think it will be admitted that your correspondent is very hard to please. Few properties, indeed, have been reported upon so completely, or by inspectors of such varied position and attainments. At this every tone, the directors will be most happy to afford every facility for the examination of the property to any person properly authorised by shareholders or intending shareholders.

R. E. JOHNSON, Sec.

#### THE WHITEHAVEN IRON MINES (LIMITED).

SIR,—The miners of Cornwall and Devon are advised by Mr. Symons to go to these mines. The 30s. per week is, I agree with him, rather tempting; but will this be equal to their inconveniences? Let them judge from the following:—

- 1.—They are leaving a comfortable home to go to a place where no house is to be had; they must lodge four miles from their work; walk over mountains nearly as steep as house-tops; no road; every step their foot will be nearly under water; back-cooking.—See his Letter of Aug. 17, signed "S."
- 2.—He speaks of cottages. These must be erected in a spot where the sun will never shine; no chapel or school; no garden; and to Whitehaven, for food, via Loweswater, is over 20 miles; 10 cwt. of coal will be 10s. in cartage.
- 3.—The works are on the top of a mountain, nearly a quarter of a mile—very steep. All the timber used in their work they must carry over half-a-mile, no matter the weather.
- 4.—Should any of you go, be sure to get an agreement for 30s. a week certain, as, if not, when your family is in the company's cottages contracts may be set in which you pay will not exceed your present earnings. I speak from knowledge.

Oct. 23.

J. HODGE.

#### THE TAMAR METAL EXTRACTION COMPANY.

SIR,—Why should Mr. G. Chown, in the Supplement to last week's Journal, question the realisation of 44% 1s. per day by this company out of the levings of a former one? Someone has constituted Mr. T. J. Barnard, secretary, and there are many who will testify, from the experience he has had at the Queen and King Mines, that no appointment could be fitter for a Metal Extraction Company. The mountains of silver "as big as St. Paul's," which in imagination he realised, may possibly be now attained. Let me help him to success by a suggestion. His formerly been "scientific" extraction; and now with wonderful forethought he intends to make the ocean minister to his purpose by extracting salt from its waters; but for a scientific amalgamist he strangely forgets to mention in his prospectus that the sea also contains silver, and the *Mining Journal* has also just shown that every ton of sea water contains some 100,000 tons of mineral refuse, containing from 10 to 17 ozs. of silver per ton, resting in one mine on the banks of the Tamar, and that vast supplies are to be found in all directions, yielding equally large quantities of the same precious metal.

Now, as your correspondent observes, it really does appear remarkable that such an eminent authority as Mr. Percival Johnson, the assayer to the Mint, who for years has had the management of the Tamar Smelting Works, should leave silver of the value of a quarter of a million sterling in the debris of a mine almost within stone-throw of his own works. It would also appear just as strange that burrows elsewhere, containing such an amazing quantity of silver, should have been entirely overlooked by everyone, and that these said burrows may now be purchased for a song.

It is quite within the memory of living man that similar representations were made with regard to a mine in the very same neighbourhood, called Virtuous Lady, and the gentleman whose name stands alone at the head of the present prospectus guaranteed on that occasion a dividend of 20,000% the first year from rich discoveries in view and enormous accumulations actually broken, and with which the caverns of the mine were said to be literally crammed.

Again, in the same generation, the same mining authority defied the world to say that he would not extract from the burrows and underground workings of the Queen Mine and neighbourhood silver in quantities sufficient to discharge the National Debt.—Oct. 22.

ECHO.

#### RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—Can you inform your readers when the meeting of the Richmond Consolidated Mining Company is to be held, and why it has not been held before now? The secretary, in his letter to you of Sept. 5, which appeared in the Supplement to the Journal of Sept. 7, stated "The directors propose, when they are in possession of the accounts for the three months, from May 21, to issue a report and statement of accounts." This would be for the period ending Aug. 21, 1872, and surely these accounts ought to be received before now, and a meeting held. The Chairman of the Eberhardt and Aurora Company, at the meeting held on Tuesday, Oct. 15, is reported to have said, "Our (Eberhardt and Aurora) accounts are audited up to the end of August, and this meeting certainly could have been held one month earlier, but we received at that particular time news of that unfortunate calamity which you are all too well aware of—the burning of the International Mill." Why, therefore, has not the meeting of the Richmond Consolidated Mining Company been held at least as early (Oct. 15) as that of the Eberhardt and Aurora Company, whose accounts were audited up to the end of August—10 days later than Aug. 21, the day to which the Richmond Company's accounts were to be made up?

Oct. 21.

INQUIRER.

[For remainder of Original Correspondence see to-day's Journal.]

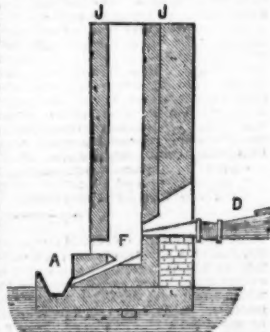
#### TIN MINING IN BANCA.

Tin appears only either as a sulphide or as a bin-oxide (cassiterite). Tin as a sulphide is very rare, but as a bin-oxide it occurs quite frequently, and is found in Chili, Mexico, Brazil, England, Bohemia, Saxony, Spain, Burmah, Malacca, and California, but especially in Banca and Billiton. It appears in Banca as stream tin (black, and sometimes light brown) and as vein tin. At present the Dutch Government only works the stream tin in Banca, which is deposited in the valleys in enormous quantities. The beds are from 9 to 30 feet deep, and consist of mud, red clay, blue clay, coarse and fine gravel, and tin. The tin beds are generally from 3 in. to 22 in. deep, but in some localities still deeper. Kaolin (porcelain earth) appears below the fine gravel, and there is no hope of finding tin below that. To examine the mineral capacity of the valleys cuts are run across them at about 100 yards apart; 3-in. holes are bored in these cuts from 20 to 25 yards apart; a copper pipe is let in, to prevent the sides of the holes from falling in, and an exact quantity of tin ore taken from each hole. The tin extracted from all these different holes is carefully washed and weighed, and a calculation is made as to the probable richness of the valley. Mines are then laid out to be worked during the hot season, which continues eight months. The remaining four months of the year, which form the rainy season, are occupied in smelting.

All of the mines are worked under the superintendence of European mining engineers and foremen, with companies of from 60 to 300 men. Work on these surface mines is begun from the lower end of the valley. Before commencing operations a dam is made across the valley, and the water drained off by means of ditches, which are used in the process of washing. The water from the mines is removed by means of chain-pumps. The gravel from the new mines is disposed of by being thrown back into the old holes.

The treatment of the tin (cassiterite) is very simple. After being washed out the mineral is taken to be roasted in a reverberatory furnace, for the purpose of getting rid of the arsenic and separating the sulphides of iron and copper. The roasted masses are then placed in large tubs of water, where the sulphides of iron and copper dissolve, and the oxides of tin, iron, and copper settle down. The separation of the sulphate is performed by evaporation and crystallisation. The oxides are exposed for several days to the air, and afterwards worked. Then the oxides are mixed up with charcoal and put in a blast furnace, like those shown in the accompanying cut. This is a vertical cylinder of cast-iron, 9 feet high, covered with clay, J J, into which air is blown by means of bellows through the pipe D. In the bottom part, F, the coal oxide is gathered together, and attacks the oxide of tin, so that the liquid tin runs with the slag into a trough, A, outside the furnace. From time to time the floating slags are taken off, and when the trough is full the vent is opened, and the metal runs in a second trough. In this trough the remaining foreign substances are taken off. This is done by taking pieces of wet greenwood, putting them on an iron rod, and dipping them in the melted mass. The charring of this green wood produces steam, and causes the foreign substances to float, so that they are readily taken off. By this method the tin produced in Banca is the best in the market. It is soft, pliable, easily stretched, very clear and of a shining bluish-white colour, and easily smelted.

The Government supplies the Chinese only with the mining en-





gineer, foreman, and furnaces. They have to supply themselves with everything else—tools, chain-pumps, &c. They receive from the Government \$5.00 for each 100 lbs. of cast tin, so they are enabled to make considerable money when industrious. The clear profit to the Government while I was in Banca amounted to about \$5,000,000 per annum. The veins of tin are very rich and extensive. The principal ones are in the hills of Merawang, Bockit, Palawang, Soengie, Sean, and Paeo.

W. BREDEMEYER, E.M.D.P.  
—Mining and Scientific Press (San Francisco), Sept. 21.

### Royal School of Mines, Gernym Street.

[FROM NOTES BY OUR OWN REPORTER.]

**LECTURE LVI.**—From what we have seen (Mr. SMYTH proceeded) of the vast volumes of air required for the ventilation of our larger collieries, it will be obvious that no system of pipes to convey fresh air from the surface would be of the slightest use. Various contrivances have been suggested to obviate the deadly effects of choke-damp—for instance, by the introduction of pipes, like gas-pipes, to carry air down; but the slightest practical acquaintance with the facts will suffice to show the absurdity of such ideas. Theorists appear to forget, or choose to ignore, the fact that the levels themselves really act as pipes of the most gigantic size. Indeed, no other system of pipes could be devised which would be capable of a practical and satisfactory application. And, even if smaller supplies of air were enough, pipes would be always liable to fracture by falls of roof and other contingencies. When, however, I point out to you the natural laws which regulate the movement of large bodies of air you will see at once innumerable difficulties in the way of any such visionary schemes. Many years ago Mr. Mariotte showed conclusively, and the fact is now thoroughly established, that the volume of a given weight of air is inversely proportional to the weight of it, the pressure remaining the same. Another important law is that laid down by Gay Lussac, who proved that, the pressure remaining constant, the increase of volume imparted to the air by heat is uniform and equal for each degree of heat; and that for each degree Fahrenheit the volume of air is increased by one 459th of its volume at zero—so that if the temperature be  $t$ , it will increase the volume by  $t \times \frac{1}{459}$ . Applying these rules, it will be obvious—

1.—That the pressure to be overcome varies according to the length of the gallery, so that if it be so much in one mile of workings, it will in a second mile have twice as much resistance as in the first.

2.—The resistance varies according to the square of the velocity of the current. This is an important point, because it is often said that if the current will blow out a candle the ventilation is good; but this rule proves that while at one place the current may be 3 ft. per second, and at another 6 ft. per second, the difference does not arise from any increase in the quantity of air, but in the variation of resistance, the difference being in that case that of 9 to 36, so that, increasing with this rapid ratio, there is a enormous loss of power.

3.—If the volume of air remains the same, the resistance varies inversely with the sectional area of the air-way, so that the larger the air-way the less resistance is offered, and the larger the volume of air obtained.

From a proper consideration of these facts, it will be seen that the air-ways ought to be made as large as possible consistent with other circumstances, so that all idea of pipes is out of the question in dealing with such large bodies of air. There is another point affecting the division of air—that in galleries of equal sections which differ only in length, but in which the one is more tortuous than the other, the velocity will be greater in the straight, so that probably where in one place 30,000 cubic feet may pass per minute, only 20,000 will pass in more crooked parts of its course. In order, therefore, to secure a proper distribution through all the workings, all the circumstances must be carefully considered, and when falls of roof or anything else have happened to produce obstructions they should be removed as quickly as possible. A knowledge of these principles is not less important as affecting the ventilation of metalliferous mines, even where, as in the case of the Levant Mine, there is throughout the greater part of it admirable ventilation from natural causes. Towards the bottom of the mine they have from 80 to 90° of temperature, and the levels into which the ventilating current would not naturally flow it is even higher, and then artificial contrivances have to be resorted to. In metalliferous mines these ventilating contrivances are not so constantly as they should be based upon the principles which guide spontaneous ventilation, and those which have been found most manageable and effective in dividing the currents of air. There are modes of estimating the velocity of the air. In metalliferous districts some of the men by long practice can tell by merely walking along the levels with a lighted candle how much air per minute is passing through, and that to a nicety quite sufficient for ordinary purposes. It is, however, generally necessary to resort to more exact expedients. In making calculations of this kind the first point is to ascertain the area of any given level by measuring the height—say, 6 ft.—by the breadth 5 ft., which would give an area of 30 feet. Then, having measured off a convenient length—say, 200 ft.—a little gaspump is fired off, and then, by timing the movement of the cloud of smoke by a stop-watch, the rate at which it moves per minute is obtained. Then, multiplying 200 ft. by 30 ft. area, you get the number of cubic feet of air which pass through that portion of the workings per minute. There are, however, many excellent instruments for measuring air currents. One of the best known, perhaps, is Biam's anemometer, made by an instrument maker at Derby, named Davis. It consists of an fan-wheel, which is placed in the air-way, with screw vanes. These are pitched at such an angle as to take the full force of the current. The axle of the fan-wheel being thus set in motion, certain indices are marked upon the side, showing tens, hundreds, and thousands. In order to get the velocity, the engineer notes the position of the indicator, and then sees by its change of position what has passed through the instrument in a given time. By the constant use of this instrument a continual check is kept upon the efficiency of the ventilating furnaces. The same instrument is made on a smaller scale, the wheel being 4 in., or even only 2½ in. in diameter, in which case, the friction being less, better results are obtained. The instrument of Prof. Phillips, of Oxford, made at the suggestion of Mr. Tickle, a colliery viewer of eminence, is a graduated quadrant, with a balanced vane, which rises or falls by the effects of the air, and thus indicates the speed of the current. Another delicate and beautiful little instrument, made by M. Casella, of Hatton-garden, shows the very slightest current. These instruments, placed at little distances apart, according to the amount of friction the air is exposed to, give results which are not materially affected by comparative accuracy. If they only represent to us the results of the ventilating current produced by the changes of weather and the variations of barometrical pressure, those results are so important that regular records of the measurements ought to be kept. Such records should be tabular, and show the reading of the barometer and of the thermometer, the direction of the wind, the velocity of the intake, and that of the return. The instrument most frequently used to reckon what is called the "drag" of the mine—that is, the tendency of the air to force its way through old doorways and stoppings—is the water-gauge. There is, however, a very good instrument for this purpose invented by Mr. Dalgleish, of the Scotch Collieries. This water-gauge, however, must only be looked upon as an assistant. It will show very readily when the drag or friction in the current passing through the mine has been increased by any means. Suppose, for instance, there had been a fall in the air-ways, the water-gauge will show very distinctly indeed the increased drag, and thus indicate the necessity of at once sending a man through the air-ways to put things to rights. It is, therefore, a very important addition to the working apparatus of a colliery; but the ventilation can only be measured by the anemometer. Where the ventilation is to be systematically examined it becomes very important that these measurements and observations should be made regularly by certain of the officers. It has been provided by law that every working place shall be examined before the men go into it in the morning, to be sure that no noxious or explosive gases are lurking there; but we know very well that serious changes take place during the day, so that, notwithstanding all may be right in the morning, the colliery may lapse into a dangerous condition before night. Even the amount of coal or slack consumed at the furnace, if allowed to vary, may make a difference, and according as it is more or less, there may be a difference of from 3 to 8 tons in a day, there being too often a tendency on the part of firemen to heap up the coal over much, instead of keeping up a regular but thin fire.

The number of accidents which result from bad ventilation or the sudden suspension of blowers in fiery mines, no doubt gives importance and weight to every suggestion having for its object the reduction of danger or the saving of life. It is, therefore, unwise as well as wrong to discard any suggestion without discussion; but it is, after all, only practical considerations which will lead to satisfactory results. One suggestion which has been repeatedly made—that every working place shall have a separate intake and outlet which sounds well theoretically, so that in case of explosion no one in the other places of work would suffer—would require so large an outlay as to render it impossible for it to be adopted consistently with commercial success. The division of large collieries into panels and the subdivision of the currents of air are steps in that direction. The great point in all places of working or ventilation is that (whatever other advantages they may promise) they shall not be inconsistent with the payment of a certain amount of profit to the owners. This may be done with the panel system, which might also be applied to existing workings by putting in strong stoppings and other cognate arrangements. The sub-divisional principle is also a practical arrangement which is effective, and not too costly. It is effective because it carries the air with unbroken force into each division, and brings back the gases and impurities it meets with to the upcast shaft, without taking them into other divisions. And it has occurred to me that when an explosion has taken place men have been saved from choke-damp by managers to practically demonstrate how much further these principles can be carried; and, without altogether ignoring theorists, it is to such practical sources that we must look for improvement.

**COAL MINES INSPECTION.**—A very useful edition of the Coal Mines Regulation Act, 1872, with explanatory introduction and notes, and forms for work-verification, has just been published through Messrs. Barford and Newitt, of Wolverhampton, by Mr. J. W. HALL, solicitor, and clerk to the Justices for the Bilston Division of Staffordshire, and will certainly find a large number of readers. The excellent outline of the objects and the provisions of the Act, whilst the mode in which the several provisions are arranged greatly facilitates reference to the several sections. Many very valuable notes are given by way of appendix, and will be still more useful to a large number of the readers of the work, some excellent models of the forms in which notices required to be given under the Act can be conveniently written. The issue of the work in pocket-book form will also further recommend it.

**CIVIL SERVICE ARITHMETIC.**—A new edition of Mr. R. JOHNSTON'S Civil Service Arithmetic has just been published by Messrs. Longmans and Co. Improvements have been introduced; but we find the rules clearly and concisely stated, and sufficiently illustrated with worked examples. Mr. Johnston treats

exclusively of the practice of arithmetic, leaving the theory to the teacher, which is, perhaps, desirable. The contracted method of finding the G. C. M. of several numbers is not usually given in school books of this class, yet may often be usefully employed in practice; thus, in finding the G. C. M. of 1216, 852, 424, it is seen by inspection that all are divisible by 8; they are, therefore, cancelled down to 152, 106, 53; then it is seen that 152 and 106 are both divisible by 2, and 76, 53 are prime to each other, and neither measure 76, it is concluded that the G. C. M. is 8. When the division cannot readily be carried further by inspection the process is continued in the usual way; in the cancelling great care must be taken not to use any divisor which contains a factor common to any of the numbers which it does not divide; otherwise the result obtained will, of course, be incorrect. As a large number of the questions and examples given throughout the book are taken from papers already set at Civil Service, Post Office, and other similar examinations, the book will be appreciated by candidates in course of preparation for like competitions.

### MINING IN NORTH WALES.

There has been little or no change of late with regard to the business being done at the lead mines in the Mold and Holywell districts. It is said that the Amnodd and Nant Du Lead Mines, in Merionethshire, are about to be opened by a limited company. The coal trade has been very good, but it is by no means so active as it has been. A considerable tonnage is now used for the supply of the locomotives, and also for the supply of the vessels plying between Holyhead, Dublin, and Kingston. Whilst at the former place a few days since we noticed a considerable number of wagons loaded with the produce of the Oaks Mine, near Mold. There has been some talk of steamers taking coal at Dublin, but that is far from likely, seeing that not only is the Irish not so well adapted for steam purposes as the Welsh or English, but the recent "finds" of coal at Waterford and Armagh, as well as at other places, are of considerable less importance than has been attached to them. The collieries in the Mold district have been doing very well of late, and the produce shows a marked increase over that of the corresponding period of last year. A large tonnage of coal is being raised at Mostyn. In addition to what is required for the furnaces and local use, and some of it is being forwarded to London. The little port, to which ironstone is brought from the Continent, had quite a lively appearance when we were passing it a few days ago. The company is not only sending coal by rail, but also by water, and are now turning out a large quantity of coke. The works and pits at Ruabon have been doing very well, and a heavy tonnage has of late been sent over the Great Western, some going as far as the metropolises.

A new colliery, it is said, is about to be opened out at Wrexham, near to the Walnut Tree Tavern, on the estate of Sir R. A. Dunell, Bart., the recently-elected Member for the Flint Boroughs. With regard to the inundation of the Wrexham Colliery, it is gratifying to find that it is to be cleared and worked. There are few finer collieries in North Wales; and seeing that in sinking to the coal upwards of 100,000 feet, were spent, it would indeed be a great pity were such a property to be abandoned. Since the coal was reached, however, there was a stoppage, owing to the breaking in of the water, but it was overcome. We hope before very long to be able to announce that the colliery has been cleared and work resumed. A direct line of railway from Wrexham to Birkenhead—a line that is very much required for the mineral traffic in particular—is about to be promoted; and Mr. Shone, a local engineer, who has been lately engaged in going through the necessary details and making arrangements. Such a line would not only be a great benefit to Wrexham, but more so to the collieries in the district. At Queensferry the collieries have been working favourably, as have those in the Buckley Mountains. Some coal has been sent from the Dee to Dublin, but not so very much of late. We may say that in Dublin the price of the Wokington coal was 34s. per ton, taken from the vessel. The sailors belonging to the colliery craft in that port recently struck for an advance of wages, which was conceded to them. The coal porters, who load the carts from the ships, struck for an advance of 1d. per ton, which was granted to them. The Alcey railway is now in a better position for traffic than it has been before, having a line of railway completed from the pits to Queensferry, so as to load either from the railway or ship, whilst, of great advantage to the proprietors, will also tend to the benefit of the Prime Minister, who is the lessor of the coal. At the ironworks in the same locality a brisk business is being done in engine material and mining machinery and appliances.

**GREEN HURTH LEAD MINE** is situated in the county of Durham, having for its northern boundary the rivulet or stream called Crook Burn, which at this point divides the county of Durham from Cumberland, and for its western boundary the River Tees, which separates it from the county of Westmorland. The "set" or grant is about 2½ miles in length by 1½ mile broad, and the turnpike road leading from the Alcey to Alston passes through a portion of the grant. The projected railway to connect these two towns will pass through a portion of the grant, and will greatly facilitate the delivery of lead ore from the mine, and reduce the cost of carriage. The mining operations in this property have hitherto been confined to the sill, or rock called the Bear limestone; below this limestone in this district are two beds of limestone about the same thickness, known as the Brig limestone and the Tyne Bottom limestone, and under these the Whin sett. The Whin is a rock which was not formerly much worked for lead ore, but of late years has been found productive in many parts of the North of England; it varies very much in thickness. In the adjoining grant or set it is 7 fathoms thick, and produced a very large quantity of lead ore sinking through it at a shaft called "Providence," or "Tees Side," a few miles to the south-east of Green Hurth; it is 40 fathoms in thickness; below the Whin is the Jew limestone and other stratified rocks not yet proved for ore. About 20 years ago a level 150 fms. in length was driven at Green Hurth above the Bear limestone, and a powerful east and west vein discovered. A pump was sunk into the limestone, and working carried on east and west of pump, and the ore brought to the "sump-foot" in wheelbarrows. The vein was very rich, and the dividends paid from these works were large; but as the works were extended the cost of extraction became greater, the air very impure, and the water troublesome, so that the works were abandoned, but rich ore left standing at each working. The vein was so large and massive that its true width was never ascertained, but half the height of the drift was frequently solid ore. These works now remain as left 18 years ago. A deep level was next begun about two miles west from above, under the Brig and Tyne Bottom limestone; after being driven a very long distance, and several veins cut, but not proved, the level was abandoned as being too costly and far distant to win the left and right, and a middle level immediately under the Bear limestone was begun. In driving this level an east and west vein was cut, and three north and south veins discovered, not before known to exist in the set. Workings have been carried on south on one of these veins, and chiefly from driving a level in it nearly 500 tons of rich lead ore has been raised this year, and already the called-up capital of the present company has been returned, in addition to a dividend of 3s. per share. Considerable outlay for lodging-houses, shops, stables, &c., is at the same time going on, also workings north on one of these veins, but in consequence of the want of cottages for miners the other parallel north and south veins are standing unworked, each with its own level, and the one going down brought upon as rapidly as possible, and the deep level coming towards it. The level in the sole of the present levels, where the sleepers or rails are in many places laid upon solid ore. At present the main part of the vein going south is 20 tons of ore per fathom—the branch on west side 10 tons, and the east branch 3 tons. These are probably one vein in depth, making an aggregate of 33 tons of ore per fathom the width of the vein, or a money value of 400. per fathom. The set is traversed by numerous east and west veins, known to have been productive in the neighbourhood; one has recently been cut in the level driving north, which is 5 fms. wide, a brown, waxy, and unimpaired, and presenting favourable indications for being productive for lead when the deep level comes towards it. The dues have been reduced from 1-6th to 1-10th, and no dead rent, and operations on a more extended scale are in contemplation, in which will be included a cross-cut level to unwater and re-work the mines abandoned about 18 years ago. With the exception of a few small pits and open workings at surface, the above are all the operations as yet gone into in this extensive property.

**WEST FRANCES, AND SOUTH FRANCES.**—At the meeting of West Frances adventurers, last week, the Chairman spoke of the encroachment on their mine made by South Frances. It was, he stated, a serious question as to how the South Frances could be made to account for what had been taken. They were in possession of the measurement of the ground taken, but they had not in a position to speak as to the value of the ground taken, but they had not doubt that it could be ascertained from existing accounts, samples, and books at the South Frances Mine. It would be wise to pass a resolution authorising the purser and manager to ascertain the value of the ground taken away.—Mr. Bailey said it was rumoured that the mine had no books showing the amount of tin sold.—Mr. T. T. Wear considered that if the books were not forthcoming the only alternative would be to test the amount by what was left.—Capt. Thomas did not expect to find any books. Capt. James, of the South Frances Mine, said that he had no doubt that there were no sample books at the mines, and it would be very difficult, so far as tin stock was concerned, to arrive at the value of that sold.—Capt. Thomas considered the present one of the most extensive cases of encroachment ever heard of in the county.—Mr. Bailey thought it was very undesirable that the taking of samples should be unnecessarily delayed, and moved that as the plans and sections of the encroachment by the South Frances adventurers prepared by Mr. Henderson were produced, showing that about 500 fathoms of tin had been taken away, the purser and manager should be instructed to apply to the adventurers for the value of what was taken, and if they refused to give it, to proceed to the law.—An adventurer remarked that it was stated that there was a set-off by the adventurers of the South Frances Mine on the ground that the West Frances had previously encroached on the South Frances. He asked whether that rumour was correct?—Capt. Thomas replied that he was not aware that anything of the sort had occurred.—The appointment of Capt. W. Rowe instead of Capt. Charles Crase, who had resigned, was confirmed.

**COOK'S KITCHEN.**—At the meeting, last week, the accounts showed that during the past three months the expenditure had been \$964., including 3456s. for labour; \$5 tons 1 cwt. of slack tin had been sold, and realised, after deducting dues, 7068s., leaving a profit of 1852s., from which the directors recommended a dividend of 15s. per share—3010s. worth of tin remained unsold; this the Chairman explained was ready for sale; but the agents considered that it was better, owing to the fall in prices and the dullness of the market, not to force their tin on an overstocked market. Dolcoath and Tincroft had adopted this course, and it had resulted in raising the price in the London markets. The tin had been credited at the price they would that day receive if they sold. The reduction of dividend by 5s. was owing to a temporary shortness of hands, and the consequent inability to work as vigorously as heretofore. Although the shares had had a tremendous fall, his hearers would agree with him, after hearing the agents' report, that the mine was looking, on the whole, as well, if not better, than it had three months ago, when the shares stood at 50s. It might be said that the shares were forced up too high when they rose to 60s.; but they were certainly too low now at 28s.—Capt. Thomas stated that coal was 11s. 2d. per ton dearer than at that time last year, and that iron had exactly doubled in price. The latter would, however, go down.

A "wonderful discovery" is reported from Colorado in the shape of an enormous silver ledge, or system of ledges, near Caribou. It is said to be 63 ft. in width and five miles in length, assaying from \$175 to \$1600 per ton. It is also reported that a solid mass of silver, 30 in. wide, was struck in the Marshall tunnel, near Georgetown.—Philadelphia Ledger.

### Meetings of Public Companies.

#### TAQUARIL GOLD MINING COMPANY.

An extraordinary general meeting of shareholders was held, on Monday, at the London Tavern, for the purpose either of authorising the creation of further capital or the voluntary winding-up of the company. Mr. ROSS D. MANGLES in the chair.

The notice calling the meeting was read by Mr. F. BLUETT, the secretary.

The CHAIRMAN said they were met that day for the purpose of considering those resolutions stated in the notice just read, and it appeared to him there were only two alternatives before them, either to raise more capital for the purpose of continuing the working of the company, or to wind-up the concern voluntarily, and appoint liquidators for that purpose. And it was for the present meeting to determine upon which of those two courses they would take. He did not know that it became the directors to give any advice or recommendation on the subject so early in the course of the proceedings; he had, of course—and he believed that he might say the same for his colleagues that they had their own opinions as to the course which as wise men they deemed it advisable to take. But he would much rather hear the opinions of shareholders as to what they thought upon the subject, before he ventured to offer his opinion or recommend anything to them.

A SHAREHOLDER desired that the Chairman should express at once his views on the subject. (Hear, hear.)

The CHAIRMAN said if such were the general wish of the meeting he might state that his own individual opinion was, having regard to the continuance of such unfavourable reports from their property, that their wisest course would be to wind-up voluntarily. Now, he asked permission to say one word in regard to a wholly different matter. He had been told, he had not seen it, that a gentleman of the name of Taylor, and a shareholder in the company, had published a statement to the effect that the directors held free shares, for which they had paid nothing. Now, he begged to assure the meeting, as a man of honour, that neither himself nor any other member of the board held a single free share, and that every share they held had been paid for exactly as the other proprietors' shares had been paid for, and if the company was wound-up the directors would be losers exactly upon the same scale with any shareholders present—that was, in proportion to their holding.

Mr. TAYLOR said it was impossible the members of the direction could suffer a proportionate loss with the other proprietors.

The CHAIRMAN continued: It was very wrong of anyone to publish such a statement without having first ascertained the truth of such assertion, and in the present case the publisher of that statement was entirely mistaken: none of the board held a single free share in the company, nor had they ever done so.

Mr. ATRELL asked if the Chairman spoke for himself or the other directors?

Mr. WILDE: Most undoubtedly.

Mr. ATRELL said he had addressed himself to the Chairman. He had no doubt there were parties present who had very little interest in the matter. He was of opinion that the gentlemen opposite him had no right to be on the other side of the table. He desired to elicit the reply of the Chairman, and he, therefore, again asked him if it was the opinion of the whole board that this concern should be wound-up?

The CHAIRMAN said he had answered for himself that such was his opinion; he would leave it to his colleagues to state their own opinions.

Mr. WILDE said the question he had understood to have been asked was whether the Chairman had spoken for the whole board in regard to the holding of free shares, and it had been to that he had replied "Most undoubtedly."

Mr. ATRELL desired to know from each member of the direction whether the whole board were of opinion that the company should be wound-up?

General DOWLING thought it the wisest course to adopt.

Mr. WILDE said he would rather wait and hear what the shareholders had to say on the matter.

A SHAREHOLDER asked if there had been any further information received from Capt. Martin since the last circular issued to the shareholders?

The CHAIRMAN said if it were the desire of the meeting the latest advice received should be read. (Hear, hear.)

The SECRETARY then said after the usual monthly report Capt. Martin went on to say, under date of Sept. 16, to the effect that their position on the property was very much reduced, and operations had been confined to the deep adit, but nothing of an encouraging character had been met with. In respect to Capt. Pengelly he begged to state that the magnificent shoot of gold alluded to by him must have been taken away from the mine before he (Capt. Martin) had anything to do with the property. Their mining operations had been extended much beyond the limit of the former workings, and of course if gold-bearing ground had existed it must have been met with, but no such shoot, as Capt. Pengelly described, could be found. In concluding, he expressed the opinion that the results of the former workers must have been greatly exaggerated.

A SHAREHOLDER asked a question relative to the number of shares taken by the vendors.

The CHAIRMAN said he had not been a director at the time of the formation of the company. The present board had taken the concern over from other people, and were not the original starters of the company. He had been told when examining the register of shareholders that many of those gentlemen who appeared in the list were original proprietors of the former company. He knew nothing beyond the history of the present company, and he had no knowledge as to whether the vendors had or had not any shares.

The SECRETARY, at the request of the shareholders, replied to that question. He said it was stated in the Articles of Association, in the second clause, that out of the 26,000 to be paid for the property 14,000, was to be paid in cash and 12,000, in shares.—Mr. ROWELL asked if the vendors held those shares at the present time, or had they sold them?

The SECRETARY said the holdings in respect to those shareholders had fluctuated considerably. In reply to other questions, he said they had received very few replies to the circulars sent round to the proprietors. They had not received any applications for fresh capital.

Mr. ROWELL also desired to know whether the vendors had been asked to return a portion of the purchase money, having sold a mere sham to the company? (Hear.)

The CHAIRMAN observed that the simple question they had to deal with that day was whether they would continue the company, or wind it up.

Mr. MILFORD, who remarked that he had never seen Mr. Haymen in his life, desired to repeat the question he had put again and again to their present Chairman as to where Mr. Haymen. In his opinion the most important question of the day was "Why Mr. Haymen not presented to us?" He desired to ask him how he had righteously or unrighteously done all those things to his own good, and the utter detriment of the unfortunate shareholders. And he also wanted to know where Mr. Haymen was at present.

A SHAREHOLDER observed many other people would likewise wish to be informed on that point.

Mr. WILDE said he would answer that question, being somewhat fully informed on that subject. He also had been a heavy sufferer by Mr. Haymen's actions; for instance, he had been jointly liable with him in another undertaking, and Mr. Haymen having failed he (Mr. Wilde) had had to pay his share in addition to his own. In regard to Mr. Haymen's absence, to the best of his knowledge and belief he had run away, and they did not know where he was.

Mr. ATRELL enquired if the board had ascertained what the company's plant was in Brazil was likely to realise?

The CHAIRMAN had been told that it was very valuable, and that it was likely, if well sold, to realise a considerable sum. By the last mail the board had written instructions to have everything sold at the value.

On Mr. ATRELL attempting to continue to address the meeting, he was repeatedly interrupted by Mr. MILFORD, who declared his determination to expose the gross mismanagement of the company's property, and who, in excited tones and strong terms, denounced the conduct of the members of the board, referring specially to the action of Mr. Haymen in the matter. It was, he said, a great swindle, and he was determined to bring it to the notice of the shareholders, and every working man who was embarked in the concern was now irretrievably lost. He wanted to know that fellow called Haymen, and why was it that he could not be found out. He did not care what was written in the Mining Journal in regard to the company; he deemed it simply a great swindle.

Mr. ATRELL observed that they all knew that.

Mr. MILFORD then resumed the same disorderly recrimination, when, after some time, he prevailed upon to quit the room, and the proceedings continued.

Mr. ATRELL called the attention of the meeting to the question he had put before the board—what was the value of their plant in Brazil?—plant which had cost the company a very serious sum to send out there, and which ought to be now of considerable value to them. He had desired to know the amount it would realise, and the only answer he had obtained from the Chairman was that he believed it was valuable.—The CHAIRMAN said the board had written, as he had stated, to have an exact valuation made of the company's plant.

Mr. ATRELL said the directors must have known that this concern had been going wrong it had eventually gone—that was to ruin; and certainly if they had not intended to prolong the misery of the shareholders they would have done so at the beginning of the present year at least what they have done now—given instructions to ascertain the value of the plant.

He certainly considered that much blame was due to the direction for its negligence in obtaining information as to the position of the company's property, but such conduct was "all of a piece." This position had been going on, and he believed the company was now in its fifth year, yet those gentlemen had been sitting on that side of the table promising the proprietors from time to time that fruit would be forthcoming, but they had come together year after year to listen to the same old story of failure, and their disappointments put off by delayed anticipations of the core, and prosperity. And now at last they were told the root was rotten at the core, and that, therefore, they must no longer expect anything from the property the directors when the shareholders were called upon to abandon this property they did not even know whether the plant was worth anything or nothing at all. He (Mr. Atrell) affirmed unhesitatingly that such ignorance on the part of the directors on a matter of very great importance was but a continuance of the mismanagement that had marked the conduct of their affairs from the outset.

He had been, and their present unfortunate position but too forcibly bore out his statements, a laxity in the management of this concern from beginning to end. They had been going on year after year, and for what purpose? The simple answer was, for the purpose of drawing the shareholders' money; and, as an hon. proprietor reminded him (Mr. Atrell), for the purpose of drawing their salaries. And during that period all the shareholders' money had been squandered—he was going to say swindled—away. He called the attention of the meeting to the enormous and wasteful expenditure in all the departments of the concern, and particularly to the amount that had been paid to the secretary during all the past years, and he



for what purpose; what duties had he performed that could in the smallest degree justify such an enormous salary? Their late Chairman—Mr. Haymen—had ruled the entire management of the concern, his colleagues permitting him to do almost anything he pleased in the affairs of the company. And what was the result? Why, that both the members of the board and the shareholders had been duped, and their money squandered away. And the board came before them that day and told the proprietors the best course to adopt was to abandon the property, without any positive information as to whether the plant was worth anything. Surely when those gentlemen on the other side of the table had resolved that the most advisable course to pursue was the abandonment of the property they ought to have been in a position to inform the shareholders as to the state of the company's finances, and to be able to say it was from that knowledge that they had come to the conclusion that the best course to adopt was to wind up the affair at once.

But no, they gave their opinion upon the *ipsi dixit* of a Mr. Martin; and instead of having obtained some reliable authority upon the question, nothing of the kind had been done, and they were told by the Chairman simply that "he believed the plant was valuable," while the secretary informed them that the board had written out by the last mail to ascertain the value of the plant. In conclusion, he could only say that a more reckless course of proceedings by gentlemen calling themselves business men in the City of London he had never seen, and he hoped he should never witness in any company outside those bearing the name of Haymen and Co.

The CHAIRMAN desired to correct one expression made use of by the last speaker, to the effect that the board had asked the proprietors to abandon this concern. Now, he appealed to the meeting if he was not in the right in stating that his opinion in regard to that matter had been extorted from him? He had said that he had desired to leave his decision of that point until after the expression of opinion by the shareholders. (Hear, hear.)

The gentleman who had last addressed the meeting had made use of strong language; now, it would be very easy for him, if such were his habit of thought or expression, to refer the language back upon him; but he felt confident that such useless ebullitions of temper would lead to none but profits and disadvantages; he would, therefore, refrain from replying to the attacks made upon himself and his colleagues. He might observe, however, that it should be borne in mind if the hon. proprietor had lost his money, he (the Chairman) had also been a very considerable sufferer by the company—he also had ventured money in the undertaking, and had lost it. The gentleman who had addressed the meeting did not, unfortunately, stand alone in the losses he had incurred. Why was it, therefore, that he had been singled out for such unwarrantable abuse? Mr. ATTRELL presumed, then, that the directors considered themselves entitled to be placed on the back, like a spoil child.

The CHAIRMAN did not deem it like Englishmen to come there, and because they (the directors) were sitting at the board, like so many bulls at a Spanish bull-fight, open to all attacks, to be called swindlers and such like. If the proprietors had been swindled let them bear in mind that they (the directors) had been swindled too. As he before remarked, it was not acting fairly or like Englishmen to come forward and abuse men without just ground for complaint—men who were equally losers with themselves. He could not refrain from expressing the hope that gentlemen who were sitting at the board would speak with temperance, and with consideration to the actual facts of the matter, and not use the sort of language employed by previous speakers, and which could only produce a bad effect. (Hear, hear.)

For his part, he regarded it in this light—they had lost their money; they knew that, and they must submit to the loss. In regard to what had been said as to the utter failure of the thing from beginning to end, he would remind the proprietors that there was a very considerable amount of gold—over 4000—found on the workings at the bottom of the mines. Now, he was not aware whether anyone could put forward a supposition that that amount of ore had been purposely placed there for his purpose. He would speak with temperance, and with consideration to the actual facts of the matter, and not use the sort of language employed by previous speakers, and which could only produce a bad effect. (Hear, hear.)

Mr. ROWSELL was of opinion that if the promoters of the company could in any way be made to recompense in part the shareholders for the loss they had sustained; it was most unquestionably the duty of the board to do it. But he saw no good in using harsh or strong language, or in occupying the time of the meeting by going into a variety of matters which did not affect the actual business for which they had been called together. Unfortunately, in regard to their finances they were not too well aware that there was nothing but a loss. He would say that he did not think that that had anything to do with them on the present occasion. They had been called together to consider and deal with the value of the mine, and that they knew was *nil*; they were also aware of the impossibility of raising further capital, it was useless, therefore, to talk of continuing to carry on the concern; and thus, under those circumstances, they must have resorted to the only other alternative, that of winding up the company, and that in the most economical manner. (Hear, hear.)

He presumed that they would appoint liquidators in the ordinary course, and that they would receive all such assistance as the directors could afford them. The board, he assumed, saw no good in waiting for further information from Brazil; and he would further ask if they had any suspicion of any sort of conspiracy between parties who had a better opinion of the mine, with the view of getting possession of the property the moment it was put on the market, and then turning it to good account hereafter? If there were the slightest suspicion of such a nature existing in the minds of the directors he thought the shareholders should be made aware of it, for it would indeed be a matter for deep regret if, after all the losses they had sustained, the property, on being sold by the company, became valuable under other management. (Hear, hear.)

He had heard from the gentleman who sat very near the chair a very favorable opinion of their mine, and this expression of opinion had given rise in his mind to the doubt he had stated. He was, therefore, of opinion that if they had the smallest glimmer of the existence of such parties as he had referred to, who would be willing to buy this property immediately on its being offered for sale, such information should be communicated to the shareholders. (Hear, hear.) But if such was not the case, they might proceed at once to pass a resolution to wind up the company. And although he did not suppose there was a farthing to come to the shareholders, still, he would say, they were entitled to be paid off the company's creditors, and thus have done with the concern.

Mr. BARTLETT (Chairman of the committee of enquiry) then read a statement showing the result of an investigation into the financial position of the company. According to the figures given, a balance of something over 2000*l.* remained to the good of the company after the discharge of all its liabilities. He then proceeded to say, with regard to Mr. Attrell's remarks as to the value of their plant in Brazil, that although they were fully aware it had cost a very considerable sum indeed, yet it must hardly be anticipated to realise anything like the same amount. He did not think that they could expect to get the plant sold at a profit, whereas, as they knew, it had cost about 15,000*l.* Now, Mr. Rowell had made the remark that he thought it best to wind-up the company, unless it were known there were parties particularly desirous of purchasing the property on the ground of some assured belief in its value, and he coincided in this opinion. He also thought it would be a great grievance if somebody were in future to step in and realise that which this company had failed to find. The only persons likely to be desirous of acquiring the property were in Brazil, for if the mine were to be worked in that country it, itself, was well-nigh to think that it might be made to pay. But although such was the opinion of the committee, he would say, in regard to the concern, he did not think this company would ever make a *Quaquari* even were they to expend much additional capital upon it. The only question that occurred to him was in respect to this circumstance, that Haymen's shaft was sunk to 25 fms., and then abruptly the workings ceased, the rest of their operations being most unimpressive. The working expenses that were going on were enormous, and therefore, even if the thing should be a success under its present form of management, it would require to be indeed a glorious success before any returns were made to the shareholders after defraying the cost of working the property. There was one lesson to be learnt by their misfortunes, namely, that the shareholders should not have been so deeply engaged in a project of this nature, and that they should have been more prudent. He did not see any prospect of success, and thus lose their all in a profitless enterprise. But unfortunately that time had gone by, and it, therefore, now remained to them to at once wind-up their affairs, and save what little money they could. (Hear, hear.)

His views on the question were that the company should be liquidated, and that great care should be exercised in the selection and appointment of men to act as liquidators. Above all let them select those men who would keep down the cost of the liquidation, and who would also be watchful for the presence in the market of any such purchases as he had alluded to, since it would be a matter of deep regret if it were found out afterwards that somebody had taken up this mine and made it produce results beyond what might be legitimately expected. He would not attempt for a moment to conceal that they had been grossly deceived by some parties, and it was very difficult to find out who they were; but still he thought in respect to their Chairman, for instance, who had been a shareholder, and was so still, that while they must blame him for certain faults in his administration of their affairs, yet beyond that he was not the party to whom the blame was chiefly due. The man whom he considered most in fault was not only not present, but beyond the reach of condemnation, since they were ignorant of his whereabouts. He did not see any prospect of success, and thus lose their all in a profitless enterprise, and the ill-success that had attended the operations of the company. He considered, however, they might profit by the losses they had sustained, if it had the effect of teaching them to be wary in future of investing their money in any foreign enterprise, and of paying some regard as to who was at the head of affairs.

Mr. A. HOWDEN concurred in the opinion that it was undesirable that they should waste any time longer in throwing stones at one another. He thought that, whoever might be to blame, they had arrived at a certain point in the history of this mine at which it seemed utterly hopeless to continue working it without further capital; but, even supposing they had additional money, the property appears to be at any time, and under any circumstances, a very precarious investment; and, in addition to that, those gentlemen who had taken a considerable interest in the mines had stated most emphatically that nothing more was to be done. Under those circumstances, and having regard to the facts he had alluded to, he begged to propose, without further delay, "That the *Quaquari* Mining Company (Limited) be wound up voluntarily."

Mr. BARTLETT reminded the meeting of the care and judgment that should be exercised in the selection of gentlemen to act as liquidators. He urged upon them the desirability of appointing men who would bring their affairs to a substantial result. And their liquidators should also be men who would take a firm and faithful interest in the good of the shareholders generally, and men upon whom the proprietors should be able to rely. (Hear, hear.)

Mr. T. G. TAYLOR desired to express the pleasure he had experienced on hearing the members of the board deny their ever having received free shares. In submission to such a denial, he begged to withdraw the remarks he had made in regard to that point. Mr. TAYLOR observed that they should never have been made. The board, they had been their watch-dog, and said he could not cease from blaming the board, and they had been paid for the purpose of protecting those interests. Now, he appealed to the members of the direction whether, having regard to the non-fulfilment of the duties for which they had been appointed, they were not desirous of returning to the shareholders every farthing they had received in the shape of directors' general body of proprietors, seeing that they had failed to render efficient service to the company? (Hear, hear.) As an instance of their utter want of management, the shareholders had that day been told by the board they actually did not know the value of the plant out in Brazil. Now, he maintained that the directors should have known its value, and not only this, but all matters connected with the company; and, if they did not know them, he must add that they had no business in the position of directors. The gentlemen on the other side of the table had sat at the board, and had listened to all that Mr. Haymen had dictated, and, having followed his counsel and lead, the company had been brought into its present unenviable position. Under those circumstances he deemed it but simply an act of justice to the shareholders that the members of the board should refund the moneys they had received from them. They had taken it, he would not say upon false pretences, but certainly they had had no *quid pro quo*; the shareholders had certainly never received the value of the money expended in directors' fees. And he felt confident that their own consciences must tell them, as his would tell him, that they must be bound by all principles of honour and justice to return it. (Cheers.) He must thoroughly acquiesce in what had been said as to the importance of exercising due care in the selection of the men to be appointed as liquidators. He would certainly advise them not to choose an accountant, because he would probably stretch the thing over several years, and the wearying delays they had already experienced would be yet further prolonged. He then briefly alluded to the circumstance of Mr. Milford's fierce attack upon the management of the concern, and the painful thought that such a scene as they had witnessed that day gave rise to. Without doubt the unfortunate shareholder's reason had been deeply and fatally affected by the continued anxiety and misery consequent on the utter failure of this undertaking, and, therefore, the loss of his money; and it was, indeed, sad to assume as was but too probably the case, that the loss of his money had been the cause of the loss also of his head. (Hear, hear.)

The CHAIRMAN said his conscience was quite clear in respect to his being fairly and honestly entitled to the remuneration of his office. He had attended the meetings of the board, and looked into the affairs of the concern thoroughly. It was not his fault that the enterprise had failed; the fault was that gold had not been found in the mine. If they had succeeded in doing this they would have been a most flourishing company. It must be obvious to the meeting nothing the directors could have done in London could have elicited more gold out of the mine than was found in it. He did not believe the company had been wrought by any men the board had appointed. They had lately sent out Mr. Martin to see if he could retrieve the fortunes of the company; and this he most thoroughly believed that if any man could have done it Mr. Martin would have been the man to do it. As to the origin of the concern, and the amount given for the property, he might remind the meeting the money paid for the mine had not been paid by a single individual who sat on the present board; the purchase money had been paid by the directors who had been members of the board before they came into office. They were, therefore, in no wise responsible for any matters connected with the company before that time. Mr. Fletcher, who had been present at their previous meetings, had been one of the old directors; he was not attributing blame to him, but certainly the blame did not apply to the present board. The property had been bought by the former directors, and he and his colleagues had simply taken it over from them; and, therefore, he felt no responsibility on that ground, nor for having neglected his duties as a director. He could unhesitatingly assure the meeting that he had done all in his power to promote the interest of the shareholders, and to ensure the success of the enterprise. That they had been ready to receive the probability of success he readily admitted, while he added that in his opinion the predecessors at the board have had the mine sold to them fraudulently. But still this belief did not help them in the least—they were all in the same boat as one another. The directors were shareholders—and considerable shareholders—and they had lost their money in common with the other proprietors. And therefore, as he before observed, he did not think it fair or English to come forward and abuse the board as the cause of their common misfortunes.

Mr. ROWSELL desired an answer to his question, that was whether the board knew of any person who, when their property was offered for sale, would be ready, from motives of which the public generally were ignorant, to come forward to purchase it?—The CHAIRMAN said they did not know of such parties. The mine would, in all probability, be sold in Brazil.

Gen. DOWNING observed that a great deal of blame had been thrown upon the board, and the cause of that abuse had been because the gold mine possessed by the company had not produced a greater quantity of gold. Now, he would ask any man in fairness to take the points he was about to allude to into consideration. A mine was obtained, and they commenced to work it upon the faith of the reports of men who were not to be trusted. The directors were not to be blamed for that. It was probable a certain quantity of gold would be found in that mine. The object would be to get directors, and for what purpose—not to go in search of gold, but to see that the arrangements regarding the mine were fairly and properly carried out, and that the shareholders' money was not expended in any way whatever but for the development of that mine, and he added that no director in England could do more than that. It was, of course, the duty of the board to select the best men to be had to send out to Brazil to do their work; but after having faithfully discharged those several duties, he maintained strongly that if the undertaking did not succeed, it was the fault of the directors. Then, again, a great deal had been said in regard to Mr. Haymen. Now, although he differed with his views in many respects, and although he thought he had acted wrongly in some respects—he was a headstrong man, and as such liable to many faults,—but still he could honestly and conscientiously stand before the shareholders and say that he believed most firmly and thoroughly that Mr. Haymen never did a single thing to put the money into his own pocket at the expense of the shareholders. It was, of course, very easy for a gentleman to come there and say to the board that they had not produced what was promised them; and to say in consequence of such a failure that the directors must refund their fees. He would have them remember they were paid not to get gold out of this mine but to manage the company's affairs. He could say with the utmost truth that he had given his most earnest attention to the affairs of the company, and that he had never missed an opportunity of promoting its interests. And he did not feel that any blame could be attached to him on the ground that the mine had not turned out a success. He also had lost his money. There was one thing alluded to which he desired briefly to refer to—viz., regarding the shares held by the members of the direction. Now, he begged to say that every member of this board only held shares that they had fairly paid for.

Mr. BARTLETT said, in regard to the directors' remuneration, that their late Chairman had taken 350*l.* out of the 750*l.*, the sum fixed by their Articles of Association. It had been suggested that the directors should refund the amount received by them as directors' fees. Now, although it was very probable that the amount of their remuneration was altogether disproportionate to the services rendered by those gentlemen, still as the amount was fixed in the company's Articles the matter resolved itself into one of appeal to the feelings of the directors.

Gen. DOWNING asked if the meeting considered 80*l.* per annum an excessive amount to pay a man for devoting his time fully one week to the affairs of a concern like this?—Mr. BARTLETT was of opinion that the directors of a company should hold an interest in the concern sufficient to induce them to devote their time and attention to the affairs of the company without the further inducement of a large sum from the funds of the undertaking. (Hear, hear.)

Mr. LITTLE had very great pleasure in seconding the resolution that the company be wound-up, because it was very evident that the continuation of the concern was the continuation of the losses.

The CHAIRMAN replied that the delay in coming to a conclusion on the question of continuing the company or of winding it up, was a very great loss.

Mr. WILDE said, in regard to the severe criticisms passed by Mr. Taylor on the faults in the management of this undertaking, that he might retort by saying in another company with which he was connected he had suffered a loss of upwards of 1500*l.* owing to the issue of a circular by Mr. Taylor.

The following resolution—"That the *Quaquari* Gold Mining Company be wound-up by voluntary liquidation," being already proposed and seconded, was then put to the meeting and carried unanimously.

A prolonged discussion then ensued in regard to the appointment of liquidators, and the names of the gentlemen who were proposed to act as liquidators, Mr. Evans, of the firm of Cooper, Wintle, and Evans, was also proposed, but owing to an almost unanimous objection on the part of the meeting to the appointment of an accountant the motion was withdrawn. In the course of the discussion it was stated that Mr. Bluet, the secretary, should be one of the liquidators, since his services were indispensably necessary in carrying out the winding-up of the company. Eventually the following names were submitted to votes of the meeting:—Messrs. Westcott, Wilde, Bartlett, and Bluet. The show of hands was in favour of the three last gentlemen, and they were accordingly declared duly appointed liquidators. Their remuneration was then fixed at a sum not exceeding 300 guineas, that amount to include all expenses.

Mr. TAYLOR begged to move a vote of thanks to the Chairman. This, on being seconded, was put and carried unanimously.

The compliment having been briefly acknowledged, the proceedings terminated.

#### EBERHARDT AND AURORA MINING COMPANY.

The adjourned meeting of shareholders was held, on Tuesday last, at the Cannon-street Hotel,—Mr. A. C. De Pass in the chair.

The subject of the meeting will be best explained by the following circular which had been issued to the shareholders:—

"The directors have the pleasure to inform the shareholders that since the general meeting of Tuesday last, the 15th inst., the gentlemen who promoted the amendment, and demanded a poll, have intimated their willingness and desire to withdraw the amendment, and avoid the necessity of continuing the poll, if the board would be willing to receive, as an addition to their number, two gentlemen of position, holding a substantial interest in the company. The two gentlemen proposed being Mr. Wm. Baxter and Mr. W. T. Allen, the board felt no hesitation in acceding to this request, and they were accordingly declared duly appointed liquidators. Their remuneration was then fixed at a sum not exceeding 300 guineas, that amount to include all expenses."

Mr. TAYLOR begged to move a vote of thanks to the Chairman. This, on being seconded, was put and carried unanimously.

The CHAIRMAN said that since he last addressed the shareholders he had received an intimation from the mover of the amendment that the committee were desirous of withdrawing that amendment under the promise that two gentlemen, whom the board should approve of, should take seats at the board when elected directors thereon—two gentlemen of position, and holding a substantial stake in the company. So that the board had but one answer, which was that they could perceive no possible objection, and that they were only too glad to have the assistance of those gentlemen to aid in the management of the company's affairs. The amendment was, therefore, withdrawn, and the present meeting was constituted as an original meeting, or as an adjournment thereof. He had, therefore, to move that the report and accounts be received and adopted.

Mr. T. G. TAYLOR said that he would, as a matter of formality, second the resolution, but he wished to know whether the two gentlemen were considered by the directors as elected members of the board? The main sore all along had been the retention of Mr. Phillpotts. He himself was a large shareholder, although all the shares did not stand in his own name, and he wished to propose a resolution.

The CHAIRMAN suggested that it was not in order at the present moment for Mr. Taylor to propose a resolution, seeing that he had risen to second the adoption of the report.

form part of the contract between the directors and the committee. He wanted to put that idea in the minds of the shareholders.

The CHAIRMAN said that before Mr. Taylor moved a resolution he had better wait for an answer to his question, otherwise the directors might be placed in a false position. (Hear, hear.) He would, therefore, reply that those two gentlemen had not at the present moment been elected members of the board with the full power and capacity to vote, but they had been invited to assist in the board's deliberations. That course had been adopted at the suggestion of Mr. Kimber, the solicitor, who had pointed out that no vacancy had occurred since the last general meeting, and that a special meeting would have to be summoned for the purpose of electing those gentlemen. Only this morning he was made aware that such a matter as that was only strictly acting on legal form, but that if the directors chose to elect those gentlemen there would be no obstacle in the way of doing so at once; at the next meeting, therefore, the board would proceed to propose them as directors. He believed that those gentlemen would be valuable acquisitions to the board.

The CHAIRMAN, in answer to Mr. Taylor, said there was 1050*l.* to the credit of the bankers in connection with the White Pine Waterworks. He also repeated the statement made at the last meeting relative to the quantity of ore crushed. He also stated that Mr. Slater, who had charge of that particular department, would be happy to give the fullest information on the point to any gentleman who would call on the office.

The resolution was then put to the meeting and carried.

Mr. T. G. TAYLOR made some observations with respect to the exact mode in which the election of the directors should be made, and said that, as a matter of courtesy, the election should be submitted to the shareholders. He, therefore, moved a resolution to the effect that this meeting approve and confirm the election by the board of Messrs. Allen and Baxter as directors, to fill two of the three vacancies which exist at the board.

Mr. KIMBER (solicitor) entered at some length into the legal question, and said that the two gentlemen were, so far as they could be, legally elected by the board, but their election would be subject to the confirmation of the next general meeting. When Mr. Phillpotts came home, which would probably be in a few weeks, a meeting would be held, and then a resolution for confirming the election of those two gentlemen would be put to the shareholders.

The directors who retired from the board by rotation—Mr. Wyon and Mr. Hammond—were then re-elected.

The CHAIRMAN, in answer to a remark by Mr. Taylor, said that there were now two gentlemen come on the board with a predisposition to effect a change in the management of the mine, and there were two other gentlemen on the board who had for some time held the same view, so that those shareholders who were of opinion that there should be a change of management would find that there were gentlemen at the board prepared to advocate their views. He deprecated all outside talking and writing, and knocking down people's characters, and speaking of them so that it was impossible almost for honourable men to act on the board, or for men of character to have anything to do with the company. (Cheers.) In reply to a telegram which was sent immediately after last meeting, Mr. Phillpotts had written to say that he could not leave before the end of December. No doubt, Mr. Phillpotts was detained in connection with the Blatchley suit, which, as was stated at last meeting, was settled in principle, but the amount to be paid to the company was to be settled by arbitration, and no doubt Mr. Phillpotts was detained in connection with that affair.

On the motion of Mr. T. G. TAYLOR, a vote of thanks was passed to the Chairman, and the meeting terminated.

#### CALDBECK FELS LEAD AND COPPER MINING COMPANY.

The half-yearly general meeting of shareholders was held at the company's offices, Post Office-court, Carlisle, on Thursday, Sir ROBERT BRISCO, Bart., in the chair.

Mr. JAMES LAINTON (the secretary) read the notice convening the meeting, and the directors' report and statement of accounts were then submitted. The profit and loss account showed a debit balance of 600*l.* 14*s.* 1*d.*; the ore sold, rent of cottages, and transfer fees, produced 461*l.* 19*s.* 6*d.*, and the outlay was 520*l.* 13*s.* 6*d.* The sundry creditors are put down in the balance-sheet at 262*l.* 1*s.* 1*d.*, and the sundry debtors at 1612*l.* 7*s.* 3*d.* The directors state that Capt. Remfry, whose previous knowledge of the property has been considerable and of long duration, was engaged to make an independent report. Both his report, and that of Capt. Hawke, strongly advise resumption of operations at engine-shaft, both by sinking deeper, and by driving on the lodes already cut through. The work here was suspended in 1870 chiefly for financial reasons; it now appears absolutely necessary to resume, and the directors have confidence in the result. Both reports refer to unfavourable change of ground in the western part of the mine, and there is a question as to whether the turbine will be equal to the increased water from the south lode at the junction shaft, so that resumption at engine-shaft is the more necessary. It is mentioned that rich copper ore has been discovered in the 10 below adit at junction shaft, east of engine-shaft. It is thought that the engine will in all probability drain the mine west, and permit present operations at junction shaft being continued. The directors have had several most serious difficulties to contend with during the past six months; the high price given for labour in iron, coal, and other mines in various parts of the country has, of course, induced many miners to leave the works; but to meet this and endeavour to retain their services every concession has been made that has been asked. The monthly men have had their wages increased, and the pays are now made every four weeks instead of, as formerly, once every calendar month. The company also surrendered two weeks in hand, so that only two weeks are now retained in place of four, as was the custom previously. The dressing-floors may be said to be complete; the engine for drawing has also been finished, and a surplus boiler brought down the hill from near the engine-shaft where it was formerly placed. A tramway will be required to be made from the dressing-floors to the engine-shaft for hauling the stuff from the latter, which will be worked by the newly-erected engine. With respect to the loss shown on the working of the half-year, your directors can only explain it by reiterating the same reasons as those given in the last report—that is to say, the continued sale of the cheaper dressing-floors, and the manager has been obliged to have recourse, combined with great scarcity of men.

The CHAIRMAN, in moving the reception and adoption of the report and accounts, spoke very encouragingly of the value of the mine.

The position and prospects of the undertaking having been fully discussed the recommendation of the board was unanimously approved of, and resolutions were passed to increase the capital from 60,000*l.* to 65,000*l.*, by creating 2500 new shares of 2*l.* each, bearing 8 per cent. preference dividend, with participation in profits when the ordinary dividend exceeds that rate. These shares will be offered to the shareholders *pro rata*.

The best thanks of the meeting were then voted by the Chairman and directors, and, having been duly acknowledged, the meeting separated.

#### CASTLE AN DINAS TIN MINING COMPANY.

An extraordinary general meeting of shareholders was held at the offices of the company, in St. Columb, on Wednesday. Mr. W. J. THOMPSON occupied the chair. The meeting was largely attended in person and by proxy, nearly the whole of the shareholders being represented, a large proportion through the managing director.

The CHAIRMAN explained that in consequence of the reported improvement in the quality of the tinstone found in the mine at the 20, the directors determined to take the opinion and advice of some independent and trustworthy mine agents on the present state and future prospects of the mine, and accordingly asked Capt. Tregay, of Pen-ar-dra, Capt. Josiah Thomas, of Dolcoath, and Capt. Hancock, of Old Treburrget, to thoroughly inspect and report on the mine. That the result proved highly satisfactory, and the directors were much gratified at receiving very encouraging reports from those well-known and skillful mine agents. The Chairman went on to say that the mine, although a success rarely met with in new mines, had been hitherto confined to a limited and comparatively small extent of tin ground, and that the directors were sensible that the property of the company would be largely advanced by carrying out the new works recommended by the inspecting agents. They felt, however, that works of development and extension such as these were somewhat in the nature of opening a new mine, and that the cost thereof should be defrayed out of the capital provided for the purpose, and not charged to income. The Chairman stated that the returns during the current year were already rather heavily weighted, on account of the great advance in the price of coal, labour, and materials. Labour, he said, had advanced quite 25 per cent. Coals, which a year ago cost on the mine only 16*s.* a ton, cost now double that price, and altogether the increase in the cost of working the mine was at least 1000*l.* for the year, or equal to a dividend of 10 per cent. on the capital of the company. The directors, therefore, were unwilling to further burden the returns with the additional cost of works of development and extension, and after mature consideration they had determined that the proper course would be to increase the capital of the company from 10,000*l.* to 15,000*l.*, by the issue of 2500 new shares. This, the Chairman observed, would provide ample funds for opening and working the mine on a much more extensive scale than hitherto, and largely increase the value of the property. The material success of the works of extension and development appears to be so certain that there could not be a doubt as to the wisdom of at once proceeding with them, and the advantages to the present shareholders were sufficiently obvious, as new shares at par will undoubtedly be principally taken by the present shareholders, who will have the first option, whereas the market price of shares was 3*l.*, and the intended extension would materially increase the value of the mine, as the intended outlay would be made for the purpose of increasing the returns of tin now known to exist in the company's property.

Reports of the inspecting agents were then read and ordered to be recorded, and it was unanimously resolved to carry out the suggestions of the agents, and for which purpose a resolution was passed to increase the capital by 5000*l.*, by the issue of 2500 shares at *p. r.*, the shareholders present as a body agreeing to subscribe liberally to the new issue.

COOK'S KITCHEN.—At a meeting held at the mine, on Oct. 17, the accounts showed a credit balance of 1909*l.* 6*s.* 11*d.*, and a dividend of 1837*l.* 10*s.* (16*s.* per share) was declared. [The report is among the Mining Correspondence.]

LEVANT MINE.—At a meeting held at the mine, on Oct. 15 (Mr. T. W. Field in the chair), the accounts showed a debit balance of 238*l.* 14*s.* 1*d.*. A call of 1*l.* per share was made. Capts. Henry Boyne and James Thomas say—"We are strengthened in our confidence as to the prospects of the mine being such as will handsomely repay the shareholders for their outlay."

WEST WHEAL FRANCES.—At a meeting held at the mine, on Oct. 17, the accounts showed a credit balance of 542*l.* 8*s.* 2*d.*, and a dividend of 512*l.* (6*s.* per share) was declared. The plan and sections of the encroachments of South Wheal Frances adventures, as prepared by Mr. Henderson, were produced, showing that upwards of 800 fms. of the tin ground have been taken away. It was proposed by Mr. C. Bailey, seconded by Mr. J. H. Budge, and resolved—"That the pursers and manager be instructed to apply to South Wheal Frances adventures for a settlement of the value of the tin taken by them." The appointment of Capt. W. Rowe as agent, in succession to Capt. C. Craze, was confirmed.

SOUTH CARN BREA.—At a meeting held at the mine, on Oct. 21, the accounts showed a debit balance of 456*l.* 13*s.* 3*d.*. Messrs. R. H. Pike and Son, the pursers, say—"We regret that the accounts show a loss on the quarter, but this is accounted for partly by changing labour pays, which will have to be done once a year, and also by consequence of the adoption of the four-weeks system, and partly by the great fall in the price of copper. You will observe in the report that the agents



trust to increase the returns of tin, and hope at the next meeting to pay off the debt balance shown in the accounts to-day.

**CONSOLIDATED COPPER COMPANY OF CANADA.**—At a meeting of shareholders, Mr. John Miller, C.E. (the Chairman), explained that he and his colleagues, who had been appointed as the deputation to proceed to Canada to investigate the value of the two copper mining properties of Ives and Harveyhill, had returned on Aug. 8 along with a competent mining and engineering authority, and that they had, with additional scientific assistance obtained in that country, thoroughly examined those properties. That they had resolved to recommend the purchase of only the Harveyhill Mine, of which they had formed a good opinion, based on their own examination of the mine and on the mining and other reports which they had received. They found the mine extensively and completely equipped, in good working order, with a display of ores of which the very excellent samples exhibited in Glasgow were a fair average representation, and needing nothing but capital to produce an immediate return. Provided the mine could be obtained at or under 70,000, they would recommend it as a promising investment well worthy that money. The Chairman explained that this meeting had merely been called to give the earliest information to the shareholders of the general results of the investigation of the deputation of directors; but that, in order to give the shareholders an opportunity of expressing their opinions, statutory meetings would be called, previous to which an explanatory circular and relative resolutions to be proposed would be sent to the shareholders at the earliest possible opportunity. The meeting unanimously concurred in these views, and broke up after a vote of thanks to the Chairman, and also to the deputation, for the attentive care which they had given to the interests of the proprietary.

[For remainder of Meetings see to-day's Journal.]

#### COMPANY OF COPPER MINERS IN ENGLAND.

The report of the committee appointed to investigate and report upon the affairs of the Governor and Company of Copper Miners in England has been published. It deals with several matters; but the ill success of the company is mainly attributed to the mismanagement and want of business judgment which for years past has existed in the London office. The committee give several instances of this, one or two of which, in particular, certainly seem to justify their remarks. A sale of 43,000 boxes of tin-plates at the close of last year, when the market was at its lowest, and when most other makers were refusing to take orders except in very limited quantities, was, to say the least, a most injudicious proceeding, and says extremely little for the foresight of the manager; but when, as it appears, this was done contrary to the advice of the works manager, it is no wonder that the shareholders were annoyed. The price of tin-plates has risen since then not far short of 14 per box, and whilst almost all other companies have been making large profits this company has let the golden opportunity go past them, and, with a falling market in prospect, have no back profits to fall upon. The report also notices a contract for machinery to the amount of about 14,000, which was ordered by the London management, but which the works manager apparently seems to have been kept in ignorance of, although the machinery had to be used by him; and, after strong expostulation on his part (the machinery being unfit for his purpose), the order was cancelled, but 3000, had already been paid to account of it. The thorough mismanagement which this exhibits is apparent; and it certainly seems to justify the report of the committee that no good result can be expected whilst such management is continued. Other matters of a similar kind are gone into, which it is unnecessary to enlarge upon. The committee make several practical recommendations, which, if adopted, they state that they see no reason why the company should not return to its former condition of prosperity. The members of the committee are all men of position and standing, some of them being extensively engaged in business themselves, and their opinions, therefore, are worthy of the utmost consideration by the shareholders; and it is heartily to be hoped the company may soon be even more prosperous than it was in years gone by.

#### TOLIMA MINING COMPANY.

We perceive with much satisfaction in the record of this week's business transactions a report of the first annual general meeting of the Tolima Mining Company, a report which we had for some time looked forward to with interest, as the undertaking had on its first introduction to the public appeared to us to possess most, if not all, of the elements of success. To those who, like ourselves, are called upon to constantly scan the constitution of undertakings which appeal to the public for their capital, there are certain indications which we accept as evidence of soundness, and the presence of which, as a general rule, is a presage of satisfactory results. First, and most important, among these is the exhibition of great circumspection in the expenditure of capital, and in this respect the arrangements of the Tolima certainly evidences caution, as of the total purchase-money of the mine—70,000—30,000, was paid in deferred shares, and of the remaining 40,000, but 20,000, became payable on transfer, an amount subsequently reduced to 14,000, the remaining 6000, being held over till the mine showed profits adequate to dividends at the rate of 10 per cent. per annum; meanwhile the remaining 20,000, was left as a purely contingent charge, only payable when dividends for two consecutive half-years, at the rate of 20 per cent. per annum, should have been divided, not only on the preference but also on the deferred shares, or until a profit income of between 13,000, and 15,000, per annum had been realised in one year. By this system of contingent money payments, combined with a large payment in deferred shares, it was evident that no great loss could be sustained, especially when one of the properties so purchased alone represented a going concern with a gross profit (on the mine) of between 4500, and 6000, a year, and an outlay in plant and works of 20,000.

The result of this cautious policy soon became apparent, for six months after the incorporation of the company the preference shareholders dividing, thanks to a retrospective purchase, a dividend at the rate of 10 per cent. per annum, before there had been time for 1s. of their expenditure to actually tell upon, or indeed be applied to, the improvement or extension of the mine; whilst now, in respect of the second six months, another dividend at the same rate is declared on the preference shares, whilst 5 per cent. per annum is divided amongst the deferred shareholders. This is the more noteworthy from the fact that, as the directors were only apprised of the completion of the purchase at the end of December last, no portion of the improved machinery—the application of which is a main feature in the company's operations—has yet been erected, nor could the results of the increased expenditure made on the existing works have had much appreciable effect at the end of May last, when the financial year in question closed.

Such results are the more noteworthy, because they not only remunerated the parties principally concerned, but, in a certain sense, exercise a beneficial influence on the general spirit of mining enterprise. Caution of a similar and equally valuable kind was exhibited in the character of the scientific evidence the directors laid before the public; and the ore at the company's mine at Frias seems, both in quantity and quality, to entirely justify the judgment of Mr. Ezekiel Williamson, under whose report the property of the company was purchased.

A still more remarkable feature in the undertaking remains still to be commented upon—that being the existence on its Frias estate of a deposit of auriferous gravel, of the existence of which the shareholders had no intimation, nor in respect of which was any estimate made in the assessment of the purchase-money. That this property will prove ultimately of value to the company there seems every reason to hope, as in a report now in the hands of the directors it is described as "of very great extent, covering at least 3000 acres of ground, and leaving frendes, or continuous workings, for over 2 miles in length." The report goes on to state that these mines were worked by the Indians, and subsequently by the Spaniards, for many years, and were, undoubtedly, very rich, water being brought to work them through water-courses 20 miles in length. The report goes on to explain that these washings anciently enjoyed such fame for their wealth that the Spanish Vice-Royalty positively fitted out an expedition for the express purpose of securing possession of the whole district; but it is added that such was the ferocity of the native Indians that the Spaniards never obtained secure possession, being able only to work them from time to time.

The report goes on to state that the deposit is still auriferous in every part, the gold being of excellent quality, giving over 90 per cent. of fine, and the grains being so large and solid that no difficulty or loss is sustained in working it out of the gravel. The question

of obtaining water, which was at one time doubtful, appears now settled, it being now stated on good authority that an adequate supply can be obtained by a very moderate expenditure.

Orders have, we understand, been given for a survey of these deposits by Mr. Clarke, the managing engineer of the Malpas Mines. The more immediate objects of the company have been, meanwhile, carefully prosecuted. Two of Prosser's patent rotating stamping-engines, one of 12 and the other of 24 heads, have been manufactured and dispatched, as well as crushing and jiggging machinery of the most approved kind and power being thus provided to dispose of four times the amount of ore that has been hitherto treated. Nor has the transport service been neglected, an advantageous contract having been entered into with the Royal Mail Steam Packet Company for the transport of the ore direct from the port of Honda, on the Magdalena, to Swansea, by which arrangement both economy and speed in the realisation of the ore will, it is anticipated, be obtained.

#### FOREIGN MINING AND METALLURGY.

At Paris copper has been tending downwards rather than otherwise. Chilian in bars has made 84; ditto in ingots, 90; and tough English, 88, per ton. At Marseilles copper has experienced a rather sensible fall; rolled red copper in sheets has brought 104; and old red copper, 78, per ton. In Germany the advance in the rate of discount has rather troubled affairs, and some sensible reductions have been noted in quotations. At Hamburg prices of copper have been irregular, but have been generally favourable to purchasers. Tin has been rather drooping at Paris; Banca has made 166; Straits, 152; and English, 156, per ton. Much the same kind of report may be made with respect to the Marseilles copper market. The German markets have been quiet; at Berlin the article has remained, however, tolerably firm. Lead maintains its price well; at Paris prices have presented a good tone; the general quotation is 21 1/2, per ton. At Marseilles lead in shot has made 22, 10s.; rolled and in pipes has also brought a similar rate. The Berlin lead market has been firm, and prices have displayed an upward tendency. Zinc has been held firmly at Paris; Silesian, delivered at Havre, has brought 24 1/2, 8s. per ton; and ditto, delivered at Paris, 24 1/2, 16s. per ton. At Marseilles rolled Vieille-Montagne zinc has made 34, per ton, with a discount of 3 per cent. In Germany the article appears to be about to revive to some extent; at Breslau, however, the business still exhibits some stagnation.

The intelligence which reaches us as to the French coal trade is not good, at any rate, for consumers. Very high rates are exacted, and at the same time it is difficult to get orders executed, so that the winter commences in a rather trying fashion. It is agreed, however, and with some show of reason, that the very acuteness of the crisis will bring about a cure. Establishments without combustible will be closed, and the consumption will consequently diminish. It is to be hoped that the crisis will not be carried to this deplorable extremity; the feverish anxiety which is displayed to secure supplies has aggravated the present dearth. In consequence of the great dearth of coal in Belgium, some quantity of English coal has again arrived in Paris.

The average price of rolled coke-made iron in Champagne, in the North, and in the South of France is now 14, per ton. Plates remain at 20, per ton; some considerable German orders have been received, and even Belgium is purchasing upon the French market. In the Nord forgers have profited from these circumstances to carry the scale between Nos. 2 and 3 boiler-plates to 14, 8s. per ton, instead of 16s. per ton, as hitherto. The French mechanical construction establishments are seriously competing in the markets of other countries for contracts for railway carriages and trucks; it is stated that French undertakings can do this advantageously in Germany, and perhaps even in Belgium. The workshops of MM. Bonnefond, at Ivry, are being re-organised for the production of tramway carriages, and in Belgium M. Eurard is doing the same. Tramway locomotion appears destined to assume a considerable development in France. The concern known as the Forges et Chantiers de la Méditerranée will pay on Nov. 2 an interim dividend for 1872, at the rate of 11 1/2, 4s. per share.

The coal crisis in Belgium seems to be drawing to a close—at least, this appears to be the general opinion. Meanwhile, the extraordinarily high prices which have been lately current are maintained, and the almost unanimous conclusions of all who have written upon the subject seems to be only the expression of a desire not yet realised. It can scarcely be expected that prices will seriously give way at a moment when winter supplies are being laid in, but these supplies once secured a different state of affairs may soon be witnessed. At Charleroi somewhat bitter complaints begin to be heard with respect to the want of rolling-stock, and at Mons a similar state of things prevails; wages are also continually advancing. The export movement of coal from Belgium is very active; this branch of Belgium business does not appear to suffer from a scarcity of trucks. Freight from Charleroi to Paris have now risen to 9s. 3d. per ton; a season similar to that of last year appears to be recommencing. Strikes continue in the basin of the centre of Belgium; they do not extend, but still they continue, a circumstance which, of course, unfortunate alike for coal owners and coal miners. Some official statistics have appeared in illustration of the progress of the Belgian coal trade. The production has been constantly increasing. Thus it rose from 3,479,000 tons in 1836 to 13,733,000 tons in 1871. In 1870 it was 13,697,000 tons. The home consumption of coal in Belgium has also very largely increased, having risen from 2,282,000 tons in 1836 to 9,546,000 tons in 1871. It may be remarked, however, that the home consumption amounted in 1870 to 9,944,000 tons, or about 400,000 tons more than the consumption of 1871. The export trade profited from this difference. In 1836 the quantity of coal exported from Belgium was comparatively small—773,000 tons, in 1870 the corresponding total was 3,752,000 tons, and in 1871, 4,186,000 tons. The number of workmen employed in the Belgian coal trade, which was 37,000 in 1836, when the production was 3,479,000 tons, increased 92,000 in 1870, when the production was 13,697,000 tons, and to 94,286 in 1871, when the production was 13,733,000 tons. The average extraction effected by each miner thus declined last year as compared with 1870. In connection with shipments of Belgian coal to England, it may be noted that the whole exports from Jan. 1 to Sept. 30 this year only amounted to 16,777 tons.

The Administration of the Belgian State railways has proceeded with a re-adjudication of iron rails. The offers, which were all English, ranged between 12s. 3s. 10d. and 12s. 12s. per ton for iron rails, and between 16s. 19s. 2d. and 18s. 8s. per ton for steel rails. The price of 14s. 8s. per ton given last week as the contract rate for the iron rails which are to be supplied to the Belgian State lines appears to have been erroneous. The Minister of Public Works has received a deputation from the Belgian rail manufacturers; this is regarded as a favourable circumstance, and hopes are now entertained that an understanding will be arrived at between the Minister and the firms in question. Old rails are giving way in price; if we mention some contracts at 8s. 8s., 8s. 16s., and even 9s. 4s. per ton, we may also mention others at 7s. to 7s. 4s. per ton. At the last adjudication of old rails from the Belgian State lines the prices of the various competitors for the rails available ranged between 6s. 2s. 6d. and 8s. 4s. per ton. Only one offer exceeded 8s. per ton; the average was little more than 7s. 4s. per ton. These rates for old rails appear too low, having regard to the price of new rails. Offers of iron are stated to have been received in Belgium from English firms, at rates sensibly lower than those of the day. Refining pig hard iron is quoted nominally at 5s. 16s. per ton; proprietors of some furnaces are endeavouring to carry the quotation to 6s. per ton, but it remains to be seen whether this latter price will become general. As regards scrap-iron, the state of affairs is exceptionally good. As regards many other articles, such as plates, machine iron, &c., some fresh orders would, it is stated, be willingly accepted; many rolling-mills have not now more work than they can readily get through.

**DRESSING STONE.**—The invention of Messrs. JOHN GRINDROD, of Stockton, and JOHN WORTHINGTON, of Manchester, for improvements in machinery for stone dressing, consists in mounting the stone to be dressed on a sliding bed, which can be moved under the cutters, and in the mounting the chisels in arms, on a shaft working in slots in a drum upon the shaft, and a ham-

mer for each chisel on a similar arm. The rotation of the shaft brings the chisel against the stone, and the hammer coming forward by the rotation of the shaft strikes against the chisel, and so on; a series of these chisels and hammers being arranged along the drum, the shaft of which is placed in bearings on slides to move or adjust the cutters vertically and horizontally. Springs or weights, acting triflingly, may be employed to assist gravity to carry forward the chisels in advance of the hammers after each stroke. Shafts and drums, carrying chisels and hammers, may be arranged on slides, at any required inclination, to operate upon two or more sides of the stone at the same time.

#### COLORADO MINING ITEMS.

**Georgetown, Oct. 3.**—The Crosby Works, owing to some little defects in the machinery, did not start up last week, but will be fairly started this week. They are amalgamating works, and will afford some slight help to our miners, but they are all complaining bitterly that they cannot get their ores reduced, that ores can be profitably shipped to Europe. The vast mineral deposits of argentiferous galena in Hall Guleh, Park county, are attracting great attention just now. Ostrander and Chase, who have leased a portion of the Cliff Mine, are taking out rich pay rock in considerable quantities. George M. Morse, one of the owners of this same Cliff Mine, has uncovered the vein on this valuable property about 250 ft. or 300 ft. west from the Discovery shaft; the vein matter shows well on the surface. Medley and Bennett struck it bigger than ever in the Phalen Mine yesterday; they have a good vein of 1000-oz. ore. The water has been taken from the main shaft of the Margaret lode, and work commenced; the ore vein is looking better than ever. M. P. Parker found a new lode on the top of Columbian Mountain yesterday; he calls it the Lincoln ore lode. The ore is a first-class sulphuret, worth 100 oz. per ton. A lot of ore from the mines on the head waters of the Platte, sampled here on the 2d inst., run 100 ozs. in silver, and 58 per cent. of lead; another lot run 50 per cent. of lead; this is a good result, as the mineral veins in that locality are quite large, and the ore free from zinc. This is, of course, a first-class ore for smelting, as in our amalgamating mills all the lead is lost. Were there a market for this ore, this district could supply 50 tons a day in a very short time.

**Golden City, Oct. 5.**—The copper mines in this vicinity are now being developed to a small extent, but there is a prospect in view for their profitable working at no distant day—that is, when the proper process for the reduction of their product shall be set in motion at this point. The ore from these mines contains from 30 to 40 per cent. of copper, besides a fair amount of silver. It will soon be extensively tested at the smelting works to be erected here, and if everything turns out to the satisfaction of the parties interested, we may expect to see a quantity of copper ore passing through our streets. A quantity of ore was shipped to Swansea, England, as a test; it gave 31 per cent. of pure copper and from 9 to 11 ozs. of silver to each ton of 2240 lbs., worth in United States currency \$122 54.

**Central City.**—The Register says that the first placer mine of note on the Platte is that of Clark and Co. Their territory extends for 2 1/2 miles up and down the river, and is 1/2 mile wide. The great drawback to mining operations in this country has been the scarcity of labour; another has been an unfavourable season, yet with all these difficulties to contend with, Clark and Co. have built a flume 3 1/2 by 6 ft. in the clear, and 1500 ft. in length. Paying ground will not be reached, so that it can be worked profitably until next year. The county from Fairplay to Montgomery is one continuous placer mine, that if worked properly can be made to pay a small profit over and above the expenses of working. Most of the placer miners along this stream are working their mines profitably, and are pre-empting them as mineral lands. The Deputy United States Surveyor of the district, Mr. H. Fawcett, is constantly on making surveys of placer mines and quartz ledges. The first mine above Fairplay is being worked with good results. Van Cleft's mine, three miles above, is paying well. Mills and Hodges, one mile above the mouth of Buckskin, are using the hydraulic, and have taken out with their supply of water quite a large amount of the precious metal.

**Want of Smelting Works in Colorado.**—Every pound of ore raised in Colorado should be treated in Colorado. Why send ores to Swansea, Wales, or Saxony, Germany, for treatment? The charges for transportation are very heavy, and are paid by the mine owners. Then, too, from three to six months elapse before returns for ore shipped to Europe can be received. The interest on the money contained in a car load of high grade ore for three months is a heavy tax on the producer. Why build up industries in Europe and outside of Colorado to our own detriment? The creation of reduction works of sufficient capacity to treat all the ore produced in Colorado would bring to the territory a large number of skilled workmen, and create the necessity for an increased production of farm and pastoral products. The production of articles of value and prime necessity enriches a country, and renders a commonwealth rich, powerful, and independent. The production of valuable ore at the present time in this country is far in advance of the capacity of our mills to handle. Were there a home market for all the smelting ores that could be produced in this county the population of Clear Creek county alone would be more than doubled in less than a year. Prof. Hill, of Black Hawk, Gilpin county, has demonstrated beyond a doubt that our auriferous, argilliferous, and cupiferous ore can be treated at remunerative profits at home. This subject demands the serious attention of every person interested in the development and prosperity of Colorado.—Colorado Miner, Oct. 3.

#### FOREIGN MINES.

**DON PEDRO NORTH DEL REY (Gold).**—Telegram from Lisbon: Produce weighed to Sept. 30, 3071 oits.; estimate for September, 4471 oits.

**BIRDSEY CREEK.**—Telegram from the superintendent, Mr. G. S. Powers (Oct. 21):—"We have cleaned up Uncle Sam claim after a run of 36 days. The profit is \$3000."

**EMMA (Silver).**—Telegram from Salt Lake City (Oct. 21):—"Forwarded no ore this week to New York; raised 450 tons of first-class ore this week; raised no second-class ore this week; 410 tons of first-class ore at railway depot; 70 tons of first-class ore raised at mine; sold 550 tons here."

**ELDORADO (Nova Scotia).**—The directors have declared a dividend of 5 per cent. for the three months ending Sept. 30.

**GOLD RUN.**—O. S. Kipp, Sept. 26: "I really cannot say just the net in dollars I have realised after retorting 264 ozs. of gold; the run is 26 days water, of which only 17 days was used in pipping; we were eight or nine days pipping up bottom before we reached the main bank; but all things in consideration it is the best run the claim ever made (this run is from the 2nd level); the claim is now in excellent order. I am highly pleased with the result of this run on the 2nd level dirt, it is yielding much better than I expected for a low bank. Messrs. Chadbourne and Dunne are now on their way to Europe; before leaving here they interviewed all things connected with your company; they will be able to explain more fully to you. While they were here they visited the Mill Company's claim (next adjoining the Gold Run), they saw the extent of the blue lead and its richness. I suggested to them the feasibility of sinking a shaft on the Gold Run and testing the rock, and I have no doubt that we will get a very rich result. The claim can be worked with much greater profit than the Mill Company's claim, and certainly at a trifling expense (say) from \$400 to \$800, and if found to be rich, I would then suggest a mill with 10 to 12 stamps, and run them in connection with the hydraulic. The same blue lead must run through the Gold Run, it cannot go otherwise."

**HUDSON (Gold).**—S. O. Brown, Sept. 21: "I have made an application, and had survey made in my own name, for United States Patent for five acres of land adjacent to the mine for mill site; when patent shall have been obtained, I shall at once deed it to the company, charging them with only the actual expense accruing. The castings, &c., mostly arrived yesterday, and I am pushing the work ahead as rapidly as possible, but find great difficulty in obtaining the proper kind of labour. I had hoped to begin pumping by Oct. 1, but find it will run over that time somewhat. In my last I mentioned the improved prospects of the Orion Mine; another located about 4 miles south from here, known as the Thorn Mine, at the depth of 272 feet is producing ore assaying as high as \$100 per ton—in fact, the average assay value of the entire lode at this point is above \$80. I merely refer to these outside properties to show that on this belt of mineral the metal-bearing ore have, thus far, without exception, greatly improved in value when the developments have become considerable in depth.—Sept. 28: The reservoir is 80 by 30 feet, and 10 feet deep, and has cost \$147; from its size it will allow the shutting off of the water entirely at different times during the day when the water is wanted in the mine, the water bill at least 25 per cent. I have located a spur of the Hudson in the name of J. J. Dunne, claiming 1500 feet; this is considered as a part of the ground desired, but it lays in rather an exposed condition, and might invite the attention of some one desirous of making a price."

**EXCHEQUER (Gold and Silver).**—Silver Mountain, Sept. 28: The work at the mill goes on bravely. The battery is all ready for the mortars, which I expect here to-morrow with our own teams. I got the new mortar-blocks in one piece, and the whole is a very solid and substantial job. The additions to the tank and pan-floors are all but completed, and the pan-frame and tanks will soon be in hand. The cams, tappets, and settlers, are not yet ready, but will be on the ground before they are required. Mr. Wheeler arrived here on Friday, and will remain with me about a week.

**BATTLE MOUNTAIN.**—Capt. Richards, Oct. 3: Reported on No alteration in the drifts of this mine has taken place since last reported on. In Face's winze, sinking below the 188 ft. level, the lode is regular, and is very promising, but the little ore we had last week has for the present disappeared.—Lake Superior. In the 135 ft. drift south we have a little black ore, and the ground generally has changed for the better: 780 sacks raised during the past two weeks, 3855 sacks waiting shipment.

**BENSBERG.**—J. W. Hoffmann, Oct. 20: The bed of carbonate to which I alluded last week has turned out very productive. We got 25 tons of rich stuff, averaging 60 per cent. of lead, out of a very small space. The bed extends beyond the open-cut under the old engine-house, where it is 6 ft. thick, as far as we can see without going deeper, and the floor of the open-cut. The roofing of the dressing-house is being pushed on as quickly as possible. The shaft has not been touched this week, as the pump piston requires new brass packing rings, which are to be ready early next week. Two mechanics are erecting the engine.

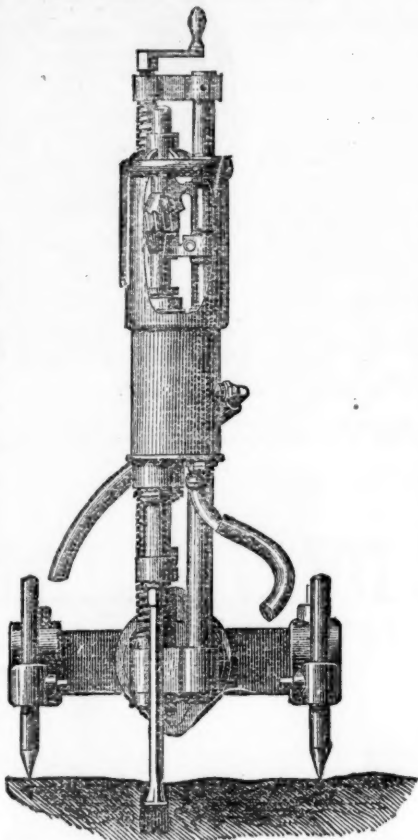
**MENZENBERG.**—R. K. Roskelly, Oct. 22: Dickinson's Shaft: The 23rd level is driven south of shaft 21 1/2 fms.; 3 fms. behind this end the 23rd level cross cut is extended east of same 25 fms., and driven since my last report 6 fms. Hence good progress has been made in developing this important point, in order to attain Dickinson's lode, which 10 ft. below the surface presents a beautiful appearance, and its intersection at this level may be looked forward to with encouraging results. Within the last 6 ft. driving here we have intersected a branch, which for the time has somewhat retarded our progress, but this we regard as being only temporary. The branch has a very kindly appearance, and the ground in which it is embedded is congenial for the production of mineral. In the 23rd level cross-cut, driving west of shaft, the ground is of a kindly nature, and during the past fortnight 6 fms. has been explored in this end. Our object in pushing on this cross-cut is to intersect a lode in advance of the present end, from which, further north, I am informed the former workers raised large quantities of copper ore.

**CAPE (Copper).**—Returns: Yield from Ockiepit, 575 tons, of 36 per cent.; Spectakel, 107 tons, of 34 per cent.—Railway: Traffic for the fortnight ending August 24, 188 tons up and 330 tons down. Bill of lading is received for 188 tons of ore per America. The Galatea, with about 500 tons of ore had sailed, but bill of lading is not yet received. The William Jones, Tacoma, and Lizzie have arrived at Swansea with (together) 1800 tons of ore and 400 tons of regulus, 340 tons of ore per Lynwood, have been paid forward for sale by public ticketing on 29th inst.

[For remainder of Foreign Mines see to-day's Journal.]



**McKEAN'S ROCK DRILL,**  
FOR MINES, TUNNELS, QUARRIES, AND SUBMARINE WORK.  
500 TO 1000 STROKES PER MINUTE  
(counted by mechanism).  
PENETRATES GRANITE 6 TO 12 INCHES PER MINUTE.  
MACHINES WARRANTED.



One of McKean's Rock Drills may be seen working in Aberdeen granite from One to Four o'clock daily at 42, Borough-road, S.E., London.

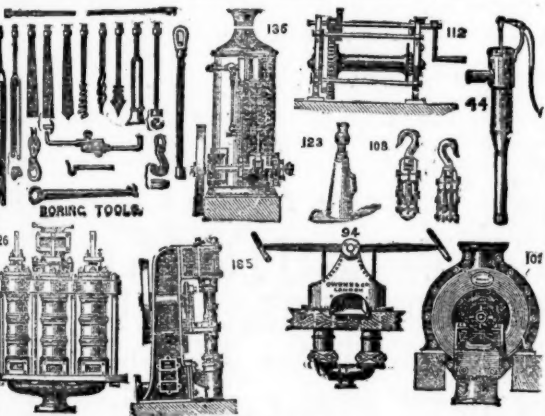
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MESSRS. P. AND W. MACLELLAN, "CLUTHA IRONWORKS,"  
GLASGOW;  
MESSRS. VARRALL, ELWELL AND MIDDLETON, PARIS;  
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SMALL PORTABLE BOILERS, or AIR COMPRESSORS, furnished, if required; the latter with GIFFARD'S FRICTIONLESS VALVE PISTON.

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Circulars sent free.

M. McKean and Co. are sole agents for M. GIFFARD'S FRICTIONLESS VALVE PISTON, for Pumps, Air Compressors, &c., giving a larger percentage of yield than any other system.

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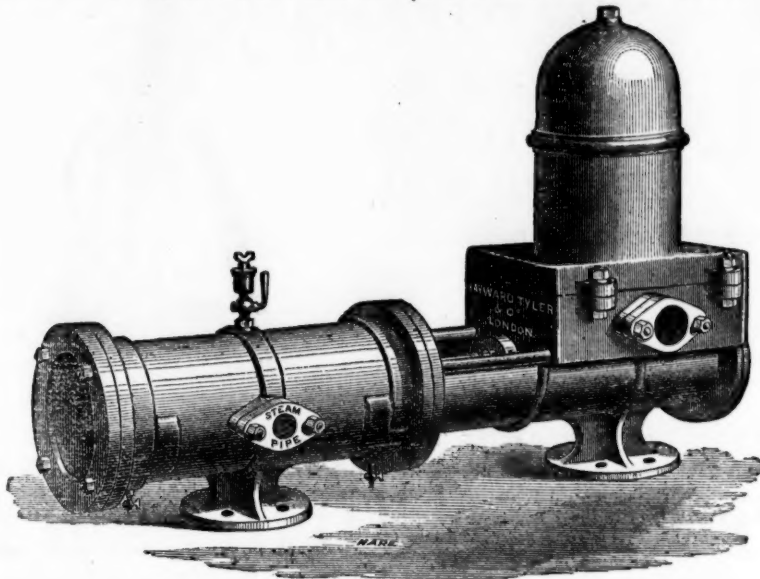
ALSO EVERY OTHER DESCRIPTION OF  
HYDRAULIC AND GENERAL MACHINERY,  
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THE HYDRAULIC RAM, FIRE ENGINES, &c.  
Catalogues and Estimates on application.



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Having purchased from the Trustee of the late Firm of W. Charles and Co. the extensive works, with the valuable and improved machinery, are prepared to execute orders for every description of  
**RAILWAY SPRINGS.**

# THE PATENT "UNIVERSAL" STEAM PUMP,

SOLE MAKERS,  
**HAYWARD TYLER AND CO.,**  
84 AND 85, WHITECROSS STREET, LONDON, E.C.



## TESTIMONIALS.

GENTLEMEN,—I have much pleasure in informing you that your Steam Pump proved itself to be one of the most useful machines for raising water that I have ever seen. It was driven night and day for nearly three months without a single hitch. The construction of the pump is so simple that any person can be taught to open it, and replace or clear the valves. I have seen no engine at all to be compared with it for mines, coal pits, or small water-works.  
I am, Gentlemen, faithfully yours,  
(Signed) P. P. MARSHALL, C.E., Surveyor.

Messrs. HAYWARD TYLER and Co., London.  
To Messrs. HAYWARD TYLER and Co., 84, Upper Whitecross-street, London.  
GENTLEMEN,—In answer to your enquiry, I beg to state that the two "Universal" Pumps supplied to us (through your agent, Mr. T. A. Ashton) are doing our work exceedingly well; we think they are the best in the market, and shall be glad if you will send us another 9-in. cylinder 6-in. pump, one week from this date.  
Yours truly,  
(Signed) ASTON MAIN COAL COMPANY.

Extract of a Letter from JOHN SIMPSON, Esq., to Hayward Tyler and Co.'s Agent.  
Rhos Llanfawr Colliery, Cierphilly, near Cardiff, March 4, 1872.  
I should like to have the water-piston and clacks the same as in our present pump, as they work exceedingly well, and I do not think it is possible to improve upon the present pump, except by lining the cylinder with brass as ordered.  
(Signed) JOHN SIMPSON.

# HAWKSLEY, WILD, AND CO.'S

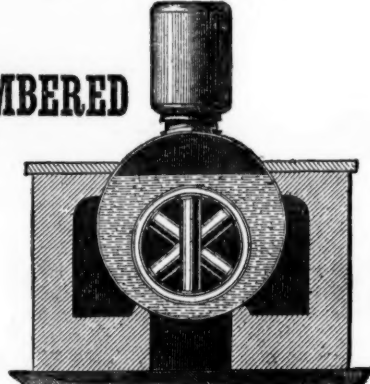
## PATENT

## FLANGED & COMBUSTION-CHAMBERED

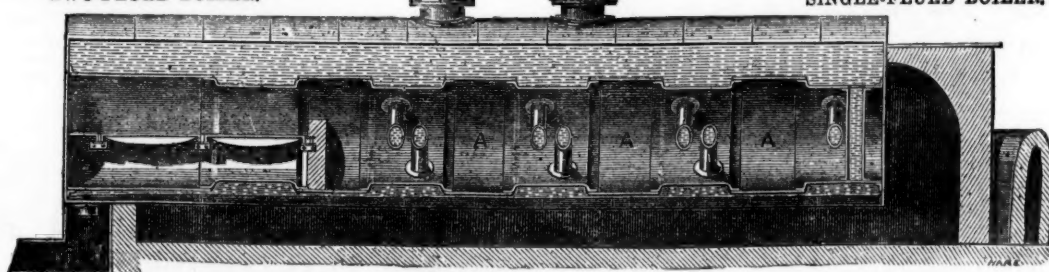
## FLUED BOILERS.



TWO-FLUED BOILER.



SINGLE-FLUED BOILER.



LONGITUDINAL SECTION.

THE FLUES OF THE ABOVE BOILERS ARE MADE OF TWO DIAMETERS, ONE RING OF PLATES BEING 4 inches less than the other, alternately.  
The smaller rings being flanged, as shown in drawing, are thereby considerably strengthened, besides securing the most material point—a perfect EXPANSION-JOINT.  
The cross tubes are placed in the smaller rings of the flue, so that any one can easily be taken out and replaced.  
The larger rings of the flue act as reverberating, combustion, and heat-retaining chambers, greatly economising the fuel.  
These Boilers are strong, durable, and economical, and have been at work a number of years with the most satisfactory results.

PATENTEES AND MANUFACTURERS:

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# PATENT STEAM EARTH-BORING MACHINES FOR MINERAL EXPLORATIONS AND WATER SUPPLY,

Capable of BORING HOLES from 6 to 36 in. diameter, and to any depth to 2000 ft.

Price, and terms of hiring, may be obtained from the Patentees,—

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# BURLEIGH ROCK DRILLING MACHINERY.



Specially Applicable  
TO  
**SINKING,  
QUARRYING,**  
AND  
MINING PURPOSES.  
**THE BEST & ONLY  
PRACTICAL DRILL.**

IT DOES NOT GET OUT OF ORDER.

PROGRESSES through Aberdeen granite at the incredible rate of 10 inches per minute.

SAVES £5 a day as compared with hand labour, independent of the enormous saving effected in the general expense, such as PUMPING, VENTILATION, INTEREST OF CAPITAL, &c., from the fact of the "put out" being increased four-fold.

DRILL POINTS.—The saving in steel alone is considerable. One drill will go through 20 feet of Aberdeen granite without sharpening.



Machine and Stand for Quarrying and Sinking.

## PRIZE MEDALS:

Royal Cornwall Polytechnic Society,  
August 21, 1872.

Liverpool and Manchester Agricultural Show, Sept. 12, 1872.

Middleton Agricultural Show, Sept. 18, 1872.

**THOMAS BROWN,**  
PATENTEE AND SOLE PROPRIETOR.

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# BROTHERHOOD AND HARDINGHAM,

LATE KITTOE AND BROTHERHOOD AND FORMERLY WILLIAM FOX,

PATENT "HELICAL" PUMP.

ESTABLISHED 1824.

## ENGINEERS AND MILLWRIGHTS,

Kittoe and Brotherhood's Patent "PARAGON" STEAM PUMPS (Sole Manufacturers).

Boulton and Imray's Patent "HELICAL" PUMPS (Sole Manufacturers).

Brotherhood's Patent "GYROSCOPIC" STEAM GOVERNORS (Sole Manufacturers).

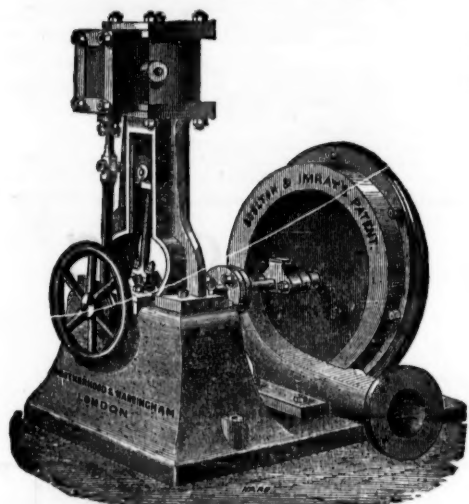
Kittoe and Brotherhood's Patent REFRIGERATORS for Brewers' purposes (Sole Manufacturers).

Kittoe and Brotherhood's Patent PUMP VALVES (Sole Manufacturers).

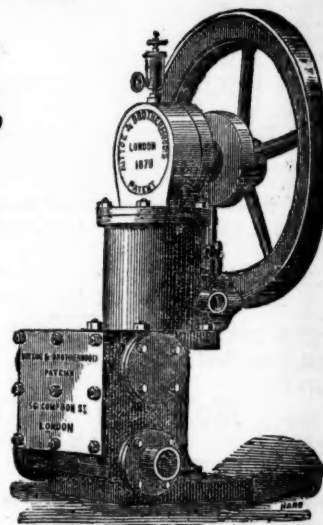
Admiral Inglefield's Patent HYDROSTATIC STEERING APPARATUS (Sole Manufacturers).

Pumping Machinery of all kinds.

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THE BEST ROTARY PUMP.



THE BEST DONKEY PUMP.

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OF

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Prize Medals, 1851, 1855, 1862, for MILL BANDS, HOSE, AND LEATHER FOR MACHINERY PURPOSES

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HUNDREDS ARE NOW IN USE, AND THE DEMAND IS UNPRECEDENTED.

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Patentees and Manufacturers: J. and F. HOWARD, BRITANNIA IRONWORKS, BEDFORD.

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ROYAL LETTERS PATENT.

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**JOHN MARTIN STANLEY, PATENTEE & SOLE LICENSOR,  
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THIS OIL is suitable to every kind of Machinery. As a lubricant it is equal to the best Sperm or Lard Oil, while it possesses the great advantage of being entirely free from any principle which will corrode the metal bearings.

For particular kinds of Machinery, the Oil may be specially prepared of a consistency and character adapted to the nature of the work to be done.

"I herewith certify that the Rangoon Engine Oil, manufactured by Messrs. Chas. Price and Co., is free from any material which can produce corrosion of the metal work of machinery. It is indeed calculated to protect metallic surfaces from oxidation."

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